

# DEPARTMENT OF PHYSICS

## Information of Work done in Department under PMUSHA (RUSA 2.0)

S.No	Name of Department	HEAD	Received Amount	Expenditure Amount	Balanced Amount	Remark
1	Physics	International Conference	Rs 300000	Rs 300046	Nil	Adjusted
2		Extension Activity	Rs 100000	Rs 100242 ( a Extension Activity Rs 13008 b Extension Lectures Rs11400 c Academic Visit & Field Work Rs 75834)	Nil	Received amount of Rs 100000 has been utilized in different activities. a Extension Activity b Extension Lectures c Academic Visit & Field Work
3		Patent	Rs 80000	Rs 80000	Nil	Two Patents Granted and one patent is awaited for grant
4		Field Work	Rs 8000	Rs 8000	Nil	
5		Skill Development	Rs 75000	Rs 75011	Nil	
6		Internship	Rs 70000	Rs 70000	Nil	

**HOD Physics**



**DEPARTMENT OF PHYSICS**  
**Govt. V.Y.T. PG Autonomous College, Durg,**  
**(Chhattisgarh), India**








**Email : [physics@govtsciencecollegedurg.ac.in](mailto:physics@govtsciencecollegedurg.ac.in)**  
**Facebook : [www.facebook.com/physicsvytpg](http://www.facebook.com/physicsvytpg)**



**International Conference on Recent Trends in  
Science and Engineering  
(8 th - 10th February 2024)**

**Three-day international conference organized under the joint auspices of Physics Department of Science  
College, Durg and I.I.T. Bhilai**

Under the joint aegis of Government Vishwanath Yadav Tamaskar Post Graduate Autonomous College, Durg and IIT Bhilai, the 3-day international conference will be inaugurated on 8 February 2024 at 10.30 am in Radhakrishnan Hall Autonomous Building, Durg. This international conference will be sponsored by PM-USHA, Seacoast and DST-FIST. Chief guest at the international conference, Prof. N.V. Ramana Rao will be Director, National Institute of Technology Raipur. In this program Professor M.A. Siddiqui Principal, Dr. K.V.R. Murthy, President, Luminescence Society of India, Program Coordinator Dr. Jagjeet Kaur Saluja, Dr. Sudhanva Patra IIT Bhilai, Dr. Vikas Dubey and all the professors of Physics Department, renowned scientists and professors from India and abroad, research students - Students will participate. According to convenor Dr. Jagjeet Kaur and secretary Dr. Abhishek Kumar Mishra, the key speakers in this conference will be Prof. from KwaZulu-Natal University, Durban, South Africa. Srikant B. Jonalagadda, Yulin University, China Dr. Santosh Kumar Verma, Central Department of Physics, Tribhuvan University, Kathmandu, Nepal Prof. Narayan Prasad Adhikari, University of Military Technology, Poland Dr. Marta Michalska Domanaska, Center for Energy Research and Development Obafemi Awolowo University Ile-Ife, Nigeria Dr. M.B. Latif, Prof. Rameshwar Adhikari from Tribhuvan University, Kathmandu, Nepal, Dr. Jelena Mitric from University of Belgrade, Dr. K.V.R. Murthy, President of MS University of Baroda, Luminescence Society of India, Prof. from RTM Nagpur University, Nagpur. S.J. Dhoble, Dr. Ankush Vij from Central University of Haryana, Dr. S.P. from North-Eastern Hill University, Shillong. Husband and Dr. Vikas Dubey, Senior Scientist from AMPRI Bhopal, Dr. Manoj Gupta, Prof. from Andhra Loyola College, Vijayawada Andhra Pradesh. M.C. Rao, Senior scientist Dr. Subrata Das from CSIR-NIIST Trivandrum, Dr. Namita Brahme and Dr. D.P. Bisen from Raipur. Along with this, there will also be oral and poster presentations for research students and the best poster will be awarded. According to Principal Professor M.A. Siddiqui, all the participants will get the latest information about science and technology from this conference. This conference will be organized in hybrid mode.

<b>Dr. Marta Michlaska Domanaska</b>	<b>Military University of Technology Poland</b>	
<b>Dr. M.B. Latif</b>	<b>Centre for Energy Research &amp; Development Obafemi Awolowo University Ile-Ife, Nigeria</b>	
<b>Dr. Jelena Mitrić</b>	<b>Faculty of Physical Chemistry, University of Belgrade -</b>	
<b>Dr. Ankush Vij</b>	<b>Central University Haryana</b>	
<b>Dr. S.P. Pati</b>	<b>North-Eastern Hill University, Shillong, India</b>	
<b>Dr. Manoj Gupta</b>	<b>Sr. Scientist AMPRI Bhopal</b>	
<b>Prof. M.C. Rao</b>	<b>Andhra Loyola College, Vijayawada Andhra Pradesh, India</b>	

<b>Prof S. B. Jonnalagadda</b>	<b>University of KwaZulu-Natal, Durban</b>	
<b>Prof. Narayan Prasad Adhikari</b>	<b>Central Department of Physics, Tribhuvan University, Kathmandu</b>	
<b>Prof. Rameshwar Adhikari</b>	<b>(RECAST), Tribhuvan University, Kathmandu</b>	
<b>Dr Santosh Kumar Verma</b>	<b>Yulin University China</b>	
<b>Prof. K V R Murthy</b>	<b>M S University of Baroda</b>	
<b>Prof. S.J. Dhoble</b>	<b>RTM Nagpur University Nagpur</b>	

## PATRONS

Prof Rajiv Prakash	Director, IIT Bhilai
Dr. M.A. Siddiqui	Principal, Govt .V.Y. T. PG. Auto. College, Durg

## CONVENER

Dr. Jagjeet Kaur Saluja	Professor & Head, Physics, Govt .V.Y. T. PG. Auto. College, Durg
Dr. Sudhanwa Patra	Assistant Professor & Head, Physics, IIT Bhilai
Dr. Vikas Dubey	Associate Professor, NEHU Shillong

## CO-CONVENER

Dr. R.S. Singh	Professor Physics, Govt .V.Y. T. PG. Auto. College, Durg
Dr. Anita Shukla	Assistant Professor Physics, Govt .V.Y. T. PG. Auto. College, Durg
Dr. Dhruv Pratap Singh	Assistant Professor Physics, IIT Bhilai

## ORGANIZING SECRETARY

Dr. Abhishek Kumar Misra	Assistant Professor, Physics, Govt .V.Y. T. PG. Auto. College, Durg
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## CO-ORGANIZING SECRETARY

Dr. Siteshwari Chandrakar	Assistant Professor, Physics, Govt .V.Y. T. PG. Auto. College, Durg
Dr. Kusumanjali Deshmukh	Assistant Professor, Physics, Govt .V.Y. T. PG. Auto. College, Durg

## ADVISORY BOARD

Dr. Anjali Oudhia	Dr. Meera Gupta	Dr. Ravi Shrivastava
Dr. Namita Brahma	Dr. Manish Kalra	Dr. Neelam Shukla
Dr. Sadhana Agrawal	Dr. P.B. Taunk	Dr. Anil Choubey
Dr. D.P. Bisen	Dr. Smriti Agrawal	Dr. S.K. Patel

## CENTRAL ORGANIZING COMMITTEE

Dr. Anupama Asthana	HOD Chemistry
Dr. Anil Kumar	HOD Biotechnology
Dr. Padmavati	HOD Maths
Dr. Pragya Kulkarni	HOD Microbiology
Dr. Sunitha B Mathew	Assistant Professor, Chemistry
Dr. Sanju Sinha	Assistant Professor, Zoology

## LOCAL ORGANIZING COMMITTEE

Dr. Mamta Parganiha	Guest Lecturer Physics
Shri . Neeraj Verma	Guest Lecturer Physics
Shri Bhupendra Das	Guest Lecturer Electronics
Shri Neeraj Yadav	Guest Lecturer Electronics
Smt. Payal Namdeo	Guest Lecturer Physics

## CONFERENCE OBJECTIVE

The conference on recent trends in science and engineering aims to bring together leading academic scientists, professional from industries and research scholars to exchange and share their experiences in basic science and technology as well as emerging trends in global technological advancement. This conference allows a interdisciplinary forum for students, research scholars and academicians for fruitful discussion and navigate the future research for better mankind.

## THEME AND SUBTHEME

- Luminescence and its applications
- Environment Science and Technology
- Materials For Display, Forensic And Biomedical Application.
- Emerging Trends In The Field Of Science, Computer Technologies And Its Application.
- Innovations in Civil Engineering
- Current And Disruptive Technologies In Mechanical Engineering As Per Current Demand In Industries And Service Sectors
- Recent Trends And New Technologies In Electrical And Electronics Engineering
- Current Trends In Electronics And Telecommunication Engineering
- Emerging Trends In Mathematical Sciences And Technology
- Emerging Trends In Environmental Chemistry For Sustainable Development And Technology

## OVERSEAS INVITED SPEAKERS

Dr. SB Jonnalagadda., University of KwaZulu-Natal, SA  
Dr. M B Latif, Awolowo University Ile-Ife, Nigeria  
Prof. Atef - El- Taher, Al-Azhar University, Egypt  
Dr. Jelena, Mitric, University of Belgrade, Serbia  
Dr. Marta Michlaska Domanaska, Military University of Technology Poland

## INDIAN INVITED SPEAKERS

Dr. K V R Murthy, M S University of Baroda  
Dr. Subrata Das, CSIR-NIIST, Thrivendrum  
Dr. Manoj Gupta, AMPRI Bhopal  
Dr. S J Dhoble, RTM University Nagpur



## International Conference

On

## Recent Trends in Science and Engineering

8<sup>th</sup> - 10<sup>th</sup> February 2024

## Conveners

Dr. Jagjeet Kaur Saluja

Dr. Sudhanwa Patra

Dr. Vikas Dubey

## Co-Convener

Dr. R.S. Singh

Dr. Anita Shukla

Dr. Dhruv Pratap Singh

## Organizing Secretary

Dr. Abhishek Kumar Misra

## Co-Organizing Secretary

Dr. Siteshwari Chandrakar

Dr. Kusumanjali Deshmukh

## Organized By

Department of Physics  
GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE,  
DURG, CHHATTISGARH  
IN ASSOCIATION WITH  
Physics Department, IIT BHILAI  
(HYBRID MODE)

## ABOUT GOVT. V.Y.T. PG. AUTO. COLLEGE,DURG

Government Vishwanath Yadav Tamaskar Post-Graduate Autonomous College, Durg, Chhattisgarh, India is a leading higher education institution in Chhattisgarh. It is affiliated to Hemchand Yadav University, Durg. The college has been conferred with the status of autonomy by UGC in 1989. The college was accredited with a grade 'A+' by NAAC in the fourth cycle and has been recognized by UGC as college with potential for excellence (CPE), receiving the grant under III phase of the scheme. Five departments from faculty of science and one from social science have been identified by UGC under CPE scheme as highly rated departments. Institute has been shortlisted and recognized under DBT star college scheme by the Department of Biotechnology (DBT) Govt. of India. Under this scheme, 6 departments from the faculty of science have been selected for providing financial support. The department of Physics & Chemistry recognized under the funds for improving science and technology infrastructure (FIST) scheme by the Department of Science and Technology, Govt. of India.

## ABOUT THE DEPARTMENT OF PHYSICS

The department was established in 1958, PG course was started in 1965. Very highly distinguished and learned professors were among the faculty. The department is actively engaged in research and having a number of sponsored UGC/CCOST/DST projects. The areas of research include Luminescent materials, Nanomaterials, Organic LED's & Photovoltaic Cell. Photonics, Electronics, Biomedical Application of luminescent materials and Radiation physics. Department of Physics is star performing department in the college and received DST-FIST grant recently for research work.

## ABOUT THE IIT Bhilai & DEPARTMENT OF PHYSICS,

Indian Institute of Technology (IIT) Bhilai was established in the state of Chhattisgarh by the Ministry of Education in the year 2016. IIT Bhilai is presently housed in its permanent campus at Kutelabhata, Bhilai, Chhattisgarh. IIT Bhilai offers BTech, MTech, MSc and Doctoral programs in various departments. The Institute made its modest start with introduction of BTech program in August 2016. IIT Bhilai has established a 3-D Printing Lab that constitutes an integral part of 3-D Modeling and Design course. The Department of Physics, Indian Institute of Technology (IIT) Bhilai, came into existence along with the establishment of the IIT Bhilai in 2016 and has already made its mark at the national and international level with several funded research projects, national-level awards, research collaborations across the country and globe.

## ADDRESS FOR CORRESPONDENCE

Contact us : **Shri Bhupendra Das**

Email Id : [physics@govtsciencecollegedurg.ac.in](mailto:physics@govtsciencecollegedurg.ac.in)

Contact No. Number 07879586493

## ELIGIBILITY

Academicians, Research Scholars. UG, PG and R&D Institutes.

## REGISTRATION FEE

Registration Fees :

Students :	Rs.1000/-
Research Scholar:	Rs. 1500/-
Faculty:	Rs.2000/-

All the offline payment should made by DD/CASH.  
All the online payment should made by NEFT

Account Number: 72900100001599

IFSC Code – BARB0DBMDUR

## IMPORTANT DATES

1. Last Date of Registration : 31<sup>st</sup> January 2024
2. Abstract Submission : 31<sup>st</sup> January 2024
3. Confirmation of participation : 5<sup>th</sup> February 2024

## ONLINE REGISTRATION LINK

[Click Here](#)

## VENUE OF CONFERENCE

**8 and 10 February 2024**

Dr. S Radhakrisnan Hall, Autonomous Building  
Govt. V.Y.T. PG. Autonomous College, Durg,  
Chhattisgarh, India, 491001

**9 February 2024**

Physics Department , IIT Bhilai



## International Conference On Recent Trends in Science and Engineering

**8<sup>th</sup> - 10<sup>th</sup> February 2024**

**Sponsored by PM-USHA , DST, CCOST & IIT Bhilai**

## OFFLINE REGISTRATION FORM

Name (Block Letter) : .....

Designation : .....

Organization/Institute : .....

Address For Communication : .....

Mobile No. : .....

Email : .....

Accommodation Required: Yes/No

Highest Academic Qualification : .....

Specialization : .....

Experience : .....

1. Teaching : .....

2. Research : .....

3. Industrial : .....

Payment Mode (DD/Cash) : .....

Amount : .....

Place : .....

Date : .....

Signature Of The Applicant



Dear Press & Print Media

Department Of Physics

**Govt. VYT PG Autonomous College, Durg, Chhattisgarh, India**

Solicit

Your Esteemed Presence

In The Inaugural Function

Of

**The International Conference On  
Recent Trends In Science And Engineering**

Sponsored By PM USHA

&

In Association With

Department of Physics,

**Indian Institute Of Technology, Bhilai, India**

On Thursday,

8<sup>th</sup> February 2024, 10:30 AM

**Chief Guest**

Dr. N.V. Ramana Rao

Director, NIT Raipur

**Guest of Honour**

Dr. KVR Murthy

President, LSI, India

**Plenary Talk By:**

Dr Sreekantha B.Jonnalagadda

Senior Professor, University of KwaZulu-Natal, SA

**Dr Abhishek Kumar Misra**  
**Organizing Secretary**

**Dr Jagjeet Kaur Saluja**  
**Dr Sudhanwa Patra**  
**Dr Vikas Dubey**  
**Convenor**

**Dr Rajiv Prakash**  
**Director IIT and Patron**  
**Dr M A Siddiqui**  
**Principal and Patron**

## Conference Schedule

### VENUE:

**8, 10 February 2024:** Dr S Radhakrishnan Hall, Govt. V.Y.T.PG. Auto. College Durg

**9 February 2024:** IIT Bhilai

### 8 February 2024 (Day-1)

9:00 -10.30 AM

Registration in front of Dr S Radhakrishnan Hall  
Govt. VYT PG Auto. College Durg

10:30 -11.30 AM

**INAUGURATION CEREMONY Dr S Radhakrishnan Hall**

Lighting of the lamp

Welcome of Dignitaries on the dais

Welcome Address by Convener, Dr. Jagjeet Kaur Saluja

Address by Guest of Honor

Presidential address: Dr. M A Siddiqui Patron & Principal, Govt. VYT PG Auto.  
College Durg

Address by Chief Guest: Prof. N.V. Ramana Rao, Honorable Director, NIT  
Raipur

Release of book of abstracts by chief guest and other dignitaries on the dias

Presentation of mementos

Vote of thanks by Convener: Dr. Vikas Dubey

11.30 -12.15 PM

High Tea Followed by Photo Session

Technical  
Session-1

Chairperson: Prof. S.J. Dhoble & Prof. Namita Brahme

12:15-1:00 PM

Plenary Talk : Dr. Prof Sreekantha B. Jonnalagadda (Novel Nanocomposites  
and Mixed Oxide material as Catalysts and other applications )

01:00 – 01:30 PM	Keynote Address by Dr. K V R Murthy, M S University of Baroda President LSI (Natural Luminescence in Nature)	
01:30 – 02:00 PM	Invited Talk by Dr. Sanjib Banerjee IIT Bhilai	
02:00 – 2:45 PM	Lunch , Govt. VYT PG Auto. College Durg	
Technical Session-2	Chairperson: Dr. Mahavir Sharma & Dr. Sesha Vempati	Chairperson: Dr. R.K. Mishra & Dr. N. Kumarswamy
2:45PM - 3:15 PM	Invited Talk by Dr. Marta Michlaska Domanaska, Military University of Technology Poland Online Mode	Invited Technical Talk by Dr. Rekha Garg Solanki Oral Presentation 01-05
3:15 – 3:45 PM	Invited Talk by Dr. B. Latif (Thermoluminescence Dosimetry: Yesterday, Today and Tomorrow), Nigeria Online Mode	Invited Talk by Dr. S.P. Pati (Brain inspired computing by using proton as neurotransmitter) Online Mode
3:45 – 4:15 PM	Invited Talk by Prof. S.J. Dhoble (Futuristic Approach of green synthesized metal nanoparticles for multidisciplinary applications )	Invited Talk by Dr. Jelena Mitrić (Plasmon-Phonon interaction and Surface Optical Mode in Cd 1-x Fe x Te 1-y Se y Single Crystals) Online
4.15-4.30 PM	Tea Break	
Technical Session-3	Chairperson: Dr. Jagjeet Kaur Saluja and Dr. Vikas Dubey	Chairperson : Dr. Sudhanwa Patra & Dr. Sabyasachi Ghosh
4:30 – 5:00 PM	Invited Talk by Dr. Dhruv P Singh (Design and applications of microrobots)	Invited Talk by Dr. Manoj Gupta (Flexible Piezoelectric Nanogenerator for Harvesting Mechanical Energy: A Next Generation Nano-Devices), Sr. Scientist AMPRI Bhopal (Online)
5:00 – 5:30 PM	Invited Talk by Prof. Namita Brahme, Pt. RSU Raipur	Invited Talk by Dr. Ankush Vij (Effect of rare earth ions on the electronic structure and luminescence of wide band gap nanophosphors), Central University Haryana (Online)
5:30 – 6:00 PM	Invited Talk by Dr. Mahavir Sharma (Virial equilibrium for stars and galaxies)	Online Oral Presentations
6:00 – 6:30 PM	Invited Technical Talk by Mr. B. Aditya 5 - Pan Universal PVT LTD	ITT by Dr. Shalu Atri , Comenius university Bratislava (Online)Oral
6:30 – 7:00 PM	Oral Presentation 06-15	

**9th February 2024 (Day-2) Venue - Department of Physics Indian Institute of Technology Bhilai**

9:00 AM	Departure for IIT Bhilai from Govt. V.Y.T.PG. Auto. College Durg (Mithila Lecture Hall Complex IIT Bhilai Hall-106)
Technical Session-4	Chair Person: Prof. KVR Murthy, President LSI & Dr. Praveen Kumar
9.30 – 10:00 AM	Invited Talk by Prof. Rameshwar Adhikari , Nepal
10:00 – 10.30 AM	Invited Talk by Dr. Khaja Mohiddin, (Virtual Assistant for Accessible and Natural Sign Language (VAANI) Dean BIT Raipur
10.30-11.30 AM	Oral Presentation 16-20
11.30-11.45 AM	Tea Break
TechnicalSession-5	Chair Person: Dr. Mahavir Sharma & Dr. R.S. Singh
11:45 – 12:00 PM	Invited Technical Talk by Dr. N. Kumarswamy (ISBM University)
12.00 -12.30 PM	Invited Talk by Dr. Sesha Vempati (What photons do to the material?)
12:30 – 2:00 PM	Oral Presentation 21-30
2:00 – 2:30 PM	Lunch (Mess Block) , IIT Bhilai Followed by Poster Session
Technical Session-6	Chair Person: Dr. Anita Shukla and Dr. Kusumanjali Deshmukh
2:30 – 3:00 PM	Invited Talk by Dr. Sabyasachi Ghosh (Physics of Quantum Hall Effect)
3:00 – 3:30 PM	Invited Talk by Dr. Padmavati Shrivastava (Navigation the Blockchain Frontier: Ethics, Sustainability and Case Studies)
3.30-4.00 PM	Invited Talk by Dr. Narayan Prasad Adhikari Nepal
4.00-4.15 PM	Tea Break
Technical Session-7	Chair Person: Dr. Sitieshwari Chandrakar and Dr. D.P. Bisen
4.15-4.45 PM	Invited Talk by Dr. R.K. Mishra, Principal BIT Raipur
4.45PM-5.15 PM	Invited Talk by Dr. Omprakash Sahu,SSIPMT Raipur

**10 February 2024 (Day-3)**

**Venue: Dr S Radhakrishnan Hall, Govt. V.Y.T.PG. Auto. College Durg**

Technical Session-8	Chair Person: Dr. Abhishek Kumar Misra & Dr. Ratnesh Tiwari	Dr. Padmavati Shrivastava
10:30-11:00 AM	Invited Talk by Dr. Sudhanwa Patra (CP-violation study with Neutrino Oscillation Experiments)	Invited Talk by Dr. Subrata Das Sr. Scientist, (CSIR-NIIST) Thiruvanthapuram (Online)
11:00-11:30 AM	Invited Talk by Dr. Vikas Dubey (Synthesis and Characterization of Eu <sup>3+</sup> doped Phosphors)	
11.30-11.45 AM	Invited Talk by Dr. Praveen Kumar (Structured Light)	
11.45 -12.15 PM	Invited Talk by Prof. M.C. Rao (Online)	
12.15 -2.00 PM	ITT by Dr. Neha Dubey (Phosphors for Forensic and Biomedical application) Oral Presentations 31-40	
2.00-3.00 PM	Lunch	
3:00 PM Onwards	Valedictory Session	
4:30 PM Onwards	Certificate Distribution	



## DEPARTMENT OF PHYSICS

Govt. V.Y.T. PG Autonomous College, Durg,  
(Chhattisgarh), India

**Email :** [physics@govtsciencecollegedurg.ac.in](mailto:physics@govtsciencecollegedurg.ac.in)  
**Facebook :** [www.facebook.com/physicsvytpg](http://www.facebook.com/physicsvytpg)



# First Day of International Conference on Recent Trends in Science and Engineering (8 February 2024)

**Positive development of the country is possible with new technology, three-day international conference inaugurated in Department of Physics Science College, Durg, and I.I.T. Bhilai**

Under the joint aegis of Government Vishwanath Yadav Tamaskar Post Graduate Autonomous College, Durg and IIT Bhilai, the 3-day international conference Recent Trends in Science and Engineering started with the inauguration of Saraswati Vandana, state song and lighting of the island. All the guests were welcomed with floral tributes. Chief guest at the international conference, Prof. N.V. Ramana Rao, Director, National Institute of Technology Raipur, while telling about the latest developments related to science and engineering, said that positive development of the country can be possible with the help of latest technology in science and engineering. Expressing happiness over organizing an international conference on the subject of science and engineering in Chhattisgarh, he expressed happiness at the colleges and IITs. Praising Bhilai's contribution in the field of research, he discussed in detail about robotics and artificial intelligence. Its former coordinator, Dr. Jagjit Kaur Saluja, threw light on how the outline of this program and the gathering will be useful for research students and professors associated with Anuradhaans. He said that there will be 42 oral presentations and 31 poster presentations in this conference. LSI Chairman Dr. K.V. R. Murthy said through this conference that we, along with scholars and scientists, have the prime responsibility to ensure that the world is equipped with science and engineering for the coming generations.

In-charge Principal Dr. Anupama Asthana while welcoming all the guests in her address said that this college has always been ready for research and innovation towards providing quality higher education. As our planet is changing and facing various adversities, this conference will bring meaningful results towards sustainable development in science and engineering. The program was conducted by Dr. Kusumanjali Deshmukh and vote of thanks was done by Dr. Vikas Dubey.

In the first technical session, Prof. from University of KwaZulu-Natal, Durban, South Africa. Srikant B. Jonalagadda (Plenary Talk) provided the latest information to the researchers about the catalytic use of nanocomposites and also discussed in detail about green synthesis. A detailed presentation on the uses of natural

luminescence in nature was given by Dr. K.V.R. Murthy, President, Luminescence Society of India. Dr. Sanjib Banerjee of IIT Bhilai told about the contribution of polymer materials in the field of engineering and biomedical.

In the second technical session, Dr. Marta Michalska Domanaska from the University of Military Technology, Poland, explained about anodizing of iron and aluminum alloys. Dr. M.B. from the Center for Energy Research and Development Obafemi Awolowo University Ile-Ife, Nigeria. Latif provided information regarding thermoluminescence dosimetry and gave details of the changes coming in the field of science and engineering with its use. Dr. S.P. from North-Eastern Hill University, Shillong. The husband lectured on computing using protons as neurotransmitters in the brain. Dr. Jelena Mintrić from the University of Belgrade described the plasmon-phonon interaction and the properties of optical surface crystals and discussed the utility of gold nanoparticles in biosynthesis. Prof. from RTM Nagpur University Nagpur. S.J. Dhoble discussed the preparation of silver nanoparticles from plants and explained the preparation of copper nanoparticles from vine plants.

In the third technical session, I.I.T. Dr. Dhruv Pratap Singh of Bhilai presented his lecture on the structure and usefulness of microrobots. He described microrobots as useful for chemical sensing and bacterial sensing. Dr. Manoj Gupta, senior scientist from AMPRI Bhopal, presented an informative lecture on nanodevices. He explained the structure of graphene and zinc oxide. Dr. Akush Vij from Central University of Haryana explained the usefulness and properties of nanophosphor. I.I.T. Dr. Mahav from Bhilai.









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**Govt. V.Y.T. PG Autonomous College, Durg,**  
**(Chhattisgarh), India**

**Email : [physics@govtsciencecollegedurg.ac.in](mailto:physics@govtsciencecollegedurg.ac.in)**  
**Facebook : [www.facebook.com/physicsvytpg](http://www.facebook.com/physicsvytpg)**



## **Second Day of International Conference on Recent Trends in Science and Engineering (9 February 2024)**

### **Usefulness of natural fiber in ketosan and nano tubes**

Introduction of Prof. Rameshwar Adhikari from Tribhuvan University, Kathmandu, Nepal by Dr. Dhruv Pratap Singh of IIT Bhilai in the fourth technical session of the Recent Trends in Science and Engineering International Conference under the joint aegis of Government Vishwanath Yadav Tamaskar Post Graduate Autonomous College, Durg and IIT Bhilai. given. Prof. Adhikari explained microscopic methods, he provided comprehensive information on Ketosan and Nano Tube in the origin and utility of natural fibres. Dr. Khwaja Mohideen from BIT Raipur explained the contribution of Artificial Intelligence and Machine Learning in sign language for deaf and mute persons and provided interesting and informative information on how this sign language can be useful. In oral presentation, Nachiket Joshi, Narayan Prasad, Rajroop Banerjee presented their research work. In the fifth session of the conference, Dr. N. Kumaraswamy from ISBM University discussed the use of luminescent materials in the latest technology. He explained about the use of nano particles in our daily life and how we all use nano particles every day. Dr. Sesha Vempati from IIT Bhilai told about perovskite solar cells. In the fifth session of the conference, Dr. N. Kumaraswamy from ISBM University discussed the use of luminescent materials in the latest technology. He told about the use of nano particles in our daily life and how we all use nano particles every day. Dr. Sesha Vempati from IIT Bhilai told about perovskite solar cells. He explained the fluorescent Raman effect by giving the example of zinc oxide. Researchers Suvendu Kumar Panda, Sapna Soni, Kanhu Andiya, Ajay Narayan Sahu, Nandita Prasanna and Lakshmi Narayan Sahu, Thandar Zah Win from Suleman, Myanmar, Smita presented their research work. Dr. Savyasachi Ghosh from IIT Bhilai explained the Quantum Hall Effect. Dr. Padmavati Srivastava from Rungta College Bhilai explained Blockchain Frontiers by giving an example. He described Blockchain as a medium of Internet of Trust. Dr. Narayan Prasad Adhikari from Tribhuvan University, Kathmandu, Nepal explained the Thermoelectric Effect. And explained the parameters related to it and also resolved the doubts of the research students. Dr. RK Mishra from BIT Raipur explained how a strong material can be made by combining local materials. Today's technical sessions were

conducted by Dr. Dhruv Pratap Singh, Dr. Praveen Kumar, Prof. KVR Murthy, Prof. Ramashankar Singh, Dr. Anita Shukla, Dr. Kusumanjali Deshmukh, Dr. Vikas Dubey and Dr. Siteshwari Chandrakar.

Poster presentations were made by the researchers, out of which the researchers would be given first, second and third prizes respectively. All the academic and non-academic, research scholars and M.Sc. second and fourth semester students of Physics and IIT Bhilai contributed in making the program successful. Professors, researchers and students from various departments were present during the program. The entire program was conducted in an interesting manner by Abhigya, a research student from IIT Bhilai.







**DEPARTMENT OF PHYSICS**  
**Govt. V.Y.T. PG Autonomous College, Durg,**  
**(Chhattisgarh), India**

**Email : [physics@govtsciencecollegedurg.ac.in](mailto:physics@govtsciencecollegedurg.ac.in)**  
**Facebook : [www.facebook.com/physicsvytpg](http://www.facebook.com/physicsvytpg)**



## **Third Day of International Conference on Recent Trends in Science and Engineering (10February 2024)**

**Opportunity to learn and understand from science and technological innovations**

**Strong efforts towards reviving the bright traditions of science**

Addressing the concluding session of the three-day program of Recent Trends in Science and Engineering International Conference under the joint aegis of Government Vishwanath Yadav Tamaskar Post Graduate Autonomous College, Durg and IIT Bhilai, Chief Guest Professor Dr. Narayan Prasad Adhikari from Tribhuvan University, Kathmandu, Nepal said that today In this environment, most of the problems can be solved only through technology. Through international conferences, youth get various opportunities to learn and understand the innovations related to science and technology. I am confident that in this 3-day international conference, young scientists and researchers will get the experience and benefit from the knowledge of senior scientists. Prof. Rameshwar Adhikari from Tribhuvan University, Kathmandu, Nepal, who was present as guest of honor in the concluding session, praised the success of this international conference in his address. From such events, researchers get very latest information and it will prove useful for the researchers to move forward in future. It is very important to organize such events from time to time to make the students aware of the latest technology. Researchers should keep striving towards making human life simple and easy with new technology.

Principal Dr. M.A. Siddiqui inspired the students to work hard and move forward, he said that if the researchers in this conference learn new technology and incorporate it in their research, then the significance of this conference will be proved and the efforts of the researchers will be taken to take the nation to the pinnacle. will succeed. In his address, Dr. Siddiqui said that such events are organized by the college to enable science students and science researchers to advance their education and research in a quality manner. The researchers are empowered to revive the bright traditions of science. Efforts should be made, he stressed the need for skills with the changing environment.

Conference coordinator Dr. Vikas Dubey provided summary information about the conference. In this conference, researchers from different countries like Nepal, China, South Africa, Poland, Nigeria, Myanmar and different provinces of India discussed their research work. The objective of this conference was to make

researchers aware of new systems and new research, so that while doing research, problems and possibilities of new technology could be brainstormed to solve them.

Dr. Sitieshwari Chandrakar announced the names of the students who performed best in oral and poster presentations. In poster presentation, Ashutosh Patel stood third, Aditi Banjare stood second and N. P. Chaitanya from IT Warangal. In oral presentation, Shireen got third place, Neeraj Verma got second place and Rajrupa Banerjee got first place. Consolation prizes were given to Sapna Soni and Chandrashekhar Verma. Awards and certificates were given to all the outstanding researchers by the guests, principal and coordinators of the conference. The program was efficiently conducted by Dr. Kusumanjali Deshmukh and the vote of thanks was given by Dr. Sudhanva Patra. In their feedback, the researchers described this memorable conference as a medium to get more and more latest information. Thanked the college and IIT Bhilai for their prompt cooperation. Dr. Vikas Dubey, in his presentation, explained the use of phosphor material in biomedical and drug delivery applications. With the help of phosphor, UV energy can be converted into visible light. Dr. Vikas Dubey encouraged the students to choose their career in research. He guided the students on what will be in demand in the future and what is in demand at present. Along with this, students were inspired to emphasize on innovative thinking. This technical session was conducted by Dr. Jagjeet Kaur Saluja and Dr. Abhishek Kumar Mishra. Head of the Department, Dr. Jagjeet Kaur Saluja thanked the Organizing Committee and sent best wishes to the students for success in their future. Dr. Jagjit Kaur Saluja Dr. R. S. Singh Dr. Anita Shukla, Dr. Sitieshwari Chandrakar, Dr. Abhishek Kumar Mishra, Dr. Kusumanjali Deshmukh, Dr. Vikas Dubey, Dr. Mamta Parganiha, Bhupendra Das, Neeraj Yadav, Payal Namdev, Khushboo Sahu, Mr. Neeraj Verma, Mr. Tirath Sinha, I.I. T. Bhilai Dr. Sudhanva Patra of, Dr. Dhruvapratap Singh, all academic and non-academic, research scholars M.Sc. Students of second and fourth semesters contributed in making the program successful. During the program, Dr. Anupama Asthana, Dr. Anil Kumar, Dr. Ajay Kumar Singh, Dr. Harjinder Singh Saluja, Dr. Padmavati, Dr. A. Khan, Dr. Abhinesh Surana, Dr. Shakeel Hussain, Dr. Sanju Sinha, Dr. Alka Mishra, Dr. Preeti Chandrakar Professors, researchers and students of various departments were present. More than 200 researchers participated in this conference, certificates were distributed to all the present researchers. All the researchers and scientists praised this conference and congratulated the organizing team.







## रोबोटिक्स कृत्रिम बुद्धिमत्ता पर हुई चर्चा

कार्नर  
न्यूज

शासकीय विश्वनाथ यादव  
तामस्कर स्नातकोत्तर स्वशासी  
महाविद्यालय, दुर्ग एवं  
आईआईटी भिलाई के संयुक्त  
तत्वावधान में 3 दिवसीय  
अंतरराष्ट्रीय सम्मेलन रिसेंट  
ट्रेड्स इन साइंस एंड  
इंजीनियरिंग का उद्घाटन  
सरस्वती वंदना, राज्य गीत एवं  
दीप प्रज्ज्वलन कर किया  
गया।

## विज्ञान एवं यांत्रिकी में नवीनतम टेक्नोलॉजी के सहयोग से देश का सकारात्मक विकास संभव



भिलाई। अंतरराष्ट्रीय सम्मेलन में मुख्य अतिथि प्रो. एन वी रमणा राव निदेशक, राष्ट्रीय प्रौद्योगिकी संस्थान रायपुर ने अपने उद्बोधन में विज्ञान एवं यांत्रिकी से संबंधित नवीनतम घटनाओं के बारे में बताते हुए कहा कि विज्ञान एवं यांत्रिकी में नवीनतम टेक्नोलॉजी के सहयोग से देश का सकारात्मक विकास संभव हो सकता है। उन्होंने विज्ञान एवं यांत्रिकी विषय पर छत्तीसगढ़ में अंतरराष्ट्रीय सम्मेलन आयोजित करने पर प्रसन्नता व्यक्त करते हुए महाविद्यालय एवं आई.आई.टी. भिलाई के शोध के क्षेत्र में योगदान की सराहना की। संयोजक डॉ. जगजीत कौर सलुजा ने इस कार्यक्रम की रूपरेखा एवं सम्मेलन किस प्रकार शोध विद्यार्थियों एवं अनुसंधानों से जुड़े प्राध्यापकों के लिए उपयोगी होगा, इस प्रकाश डाला। उन्होंने कहा कि इस सम्मेलन में 42 मौखिक प्रस्तुतिकरण तथा 31 पोस्टर प्रस्तुतिकरण होंगे। एलएसआई अध्यक्ष डॉ. के. व्ही. आर. मूर्ति ने इस सम्मेलन के माध्यम से कहा कि हम विद्वानों और वैज्ञानिकों के साथ-साथ यह सुनिश्चित करने की प्रमुख जिम्मेदारी है कि दुनिया आने वाली पीढ़ियों के लिए विज्ञान एवं इंजीनियरिंग से सुसज्जित हो।

## बायोमैडिकल के क्षेत्र में योगदान के विषय में बताया

द्वितीय टेक्निकल सत्र में सैन्य प्रौद्योगिकी विश्वविद्यालय पोलैंड से डॉ. मार्त मिचलास्का डोमिनस्का ने रोसा एवं एर्यूमिनियम के मिश्रण के एनोडॉजिंग के बारे में बताया। साथ ही उनके विशेषज्ञों ने अपने विचार रखे। तृतीय टेक्निकल सत्र में आईआईटी भिलाई डॉ. ध्रुव प्रताप सिंह ने माइक्रोरोबोट्स की संरचना एवं उपयोगिता पर अपना व्याख्यान प्रस्तुत करते हुए माइक्रोरोबोट्स को रसायनिक सेंसिंग तथा जीवाणु सेंसिंग के लिए उपयोगी बताया। इसके साथ विभिन्न राज्यों से सम्मिलित शोधार्थियों ने अपने शोध पत्र पत्र प्रस्तुत किए। विभिन्न सत्रों को प्रो. एस.जे. बोबले, प्रो. नारायण प्रसाद अधिकारी, डॉ. महावीर शर्मा, डॉ. आर. के. मिश्रा, डॉ. शोभा वेमपति, डॉ. जगजीत कौर सलुजा, डॉ. विकास दुबे, डॉ. सुधाका पात्र, डॉ. साय्यासाची घोष, डॉ. कुसुमजली देशमुख द्वारा सफलतापूर्वक संचालन किया गया।



2

रायपुर, 9 फरवरी 2024, शुक्रवार

प्रदेश

छत्तीसगढ़

## विज्ञान व यांत्रिकी में नवीनतम टेक्नोलॉजी के सहयोग से देश का सकारात्मक विकास संभव-प्रो. राव

## 'छत्तीसगढ़' संवाददाता

दुर्ग, 9 फरवरी। शासकीय विश्वनाथ यादव तामस्कर स्नातकोत्तर स्वशासी महाविद्यालय, दुर्ग एवं आईआईटी भिलाई के संयुक्त तत्वावधान में 3 दिवसीय अंतरराष्ट्रीय सम्मेलन रिसेंट ट्रेड्स इन साइंस एंड इंजीनियरिंग (विज्ञान और इंजीनियरिंग में हालिया रुझान) का उद्घाटन सरस्वती वंदना, राज्य गीत एवं दीप प्रज्ज्वलन के साथ प्रारंभ हुआ।

सभी अतिथियों का स्वागत पुष्प भेंट द्वारा किया गया। अंतरराष्ट्रीय सम्मेलन में मुख्य अतिथि प्रो. एन.वी. रमणा राव निदेशक, राष्ट्रीय प्रौद्योगिकी संस्थान रायपुर ने अपने उद्बोधन में विज्ञान एवं यांत्रिकी से संबंधित नवीनतम घटनाओं के बारे में बताते हुए कहा कि विज्ञान एवं यांत्रिकी में नवीनतम टेक्नोलॉजी के सहयोग से देश का सकारात्मक विकास संभव हो सकता है। उन्होंने विज्ञान एवं यांत्रिकी विषय पर छत्तीसगढ़ में अंतरराष्ट्रीय सम्मेलन आयोजित करने पर प्रसन्नता व्यक्त करते हुए महाविद्यालय एवं आई.आई.टी. भिलाई के शोध के क्षेत्र में योगदान की सराहना की। उन्होंने रोबोटिक्स कृत्रिम बुद्धिमत्ता के बारे में विस्तारपूर्वक चर्चा की। इसके पूर्व संयोजक डॉ. जगजीत कौर सलुजा ने इस कार्यक्रम की रूपरेखा एवं सम्मेलन किस प्रकार शोध विद्यार्थियों एवं अनुसंधानों से जुड़े प्राध्यापकों के लिए उपयोगी होगा, इस प्रकाश डाला।



उन्होंने कहा कि इस सम्मेलन में 42 मौखिक प्रस्तुतिकरण तथा 31 पोस्टर प्रस्तुतिकरण होंगे। एल.एस.आई. अध्यक्ष डॉ. के. व्ही. आर. मूर्ति ने इस सम्मेलन के माध्यम से कहा कि हम विद्वानों और वैज्ञानिकों के साथ-साथ यह सुनिश्चित करने की प्रमुख जिम्मेदारी है कि दुनिया आने वाली पीढ़ियों के लिए विज्ञान एवं इंजीनियरिंग से सुसज्जित हो।

प्रभारी प्राचार्य डॉ. अनुपमा अस्थाना ने अपने उद्बोधन में सभी अतिथियों का स्वागत करते हुए कहा कि यह महाविद्यालय सदैव गुणवत्तापूर्ण उच्चशिक्षा प्रदान करने की दिशा में अनुसंधान एवं नवाचार के लिए तत्पर रहा है। बदलते समय में हमारा प्रहर्ष विभिन्न प्रतिकूलताओं का सामना कर रहा है तो इस सम्मेलन से विज्ञान एवं इंजीनियरिंग

में सतत विकास की दिशा में सार्थक परिणाम आएंगे। कार्यक्रम का संचालन डॉ. कुसुमजली देशमुख एवं आभार प्रदर्शन डॉ. विकास दुबे द्वारा किया गया।

प्रथम टेक्निकल सत्र में सैन्य प्रौद्योगिकी विश्वविद्यालय, डरबन दक्षिण अफ्रीका से प्रो. श्रीकांत बी. जोनालगाडु ने 'प्लेनरी टॉक' नैनोकम्पोजिट्स का उर्वरक उपयोग के बारे में शोधार्थियों को नवीनतम जानकारी प्रदान की तथा साथ ही साथ ग्रीन सेंसिटिविटी के बारे में विस्तारपूर्वक चर्चा की। डॉ. के. व्ही. आर. मूर्ति अध्यक्ष, ल्यूमिनिस सॉल्यूटिऑन्स ऑफ इंडिया द्वारा प्रकृतिक ल्यूमिनिसेंस के उपयोग के उपर विस्तार से प्रस्तुतिकरण किया गया। आईआईटी

तीन दिवसीय  
अंतरराष्ट्रीय सम्मेलन

भिलाई के डॉ. संजीव बैनर्जी ने पालीमर मटेरियल के इंजीनियरिंग एवं बायोमैडिकल के क्षेत्र में योगदान के विषय में बताया।

द्वितीय टेक्निकल सत्र में सैन्य प्रौद्योगिकी विश्वविद्यालय पोलैंड से डॉ. मार्त मिचलास्का। डॉ. मातास्का ने रोसा एवं एर्यूमिनियम के मिश्रण के एनोडॉजिंग के बारे में बताया। सेंटर फॉर एनर्जी रिसर्च एंड डेवलपमेंट ओबाफेमी ओबोलोबो यूनिवर्सिटी इले-लुफे, नाइजीरिया से डॉ. एमबी लीफा थमोल्यूमिनिस डोजीमेट्री के संदर्भ में जानकारी प्रदान की तथा इसके उपयोग से विज्ञान एवं इंजीनियरिंग के क्षेत्र में आने वाले परिवर्तनों का विवरण दिया। नॉर्थ ईस्टर्न हिल यूनिवर्सिटी, शिलॉंग से डॉ. एसपी पति

ने मलिक में न्यूट्रॉनसमीटर के रूप में प्रोटॉन का उपयोग करके कंप्यूटिंग विषय में व्याख्यान दिया। बेलारुड विश्वविद्यालय से डॉ. जेलेना मित्रिक ने प्लास्मोन-फोनोन इंटरैक्शन तथा प्रकाशिक सतह क्रिस्टल के गुणधर्मों को बताया तथा गोल्ड नैनोकणों की बायोसंसेंसिटी की उपयोगिता के बारे में चर्चा की। आरटीएम नागपुर विश्वविद्यालय नागपुर से प्रो. एस.जे. बोबले ने वनस्पति से चांदी के नैनोकणों को बनाने की चर्चा की और बेल के पौधे से तांबे के नैनोकणों का बनाने को समझाया।

तृतीय टेक्निकल सत्र में आईआईटी भिलाई के डॉ. ध्रुव प्रताप सिंह ने माइक्रोरोबोट्स की संरचना एवं उपयोगिता पर अपना व्याख्यान प्रस्तुत किया। उन्होंने माइक्रोरोबोट्स को रसायनिक सेंसिंग तथा जीवाणु सेंसिंग हेतु उपयोगी बताया। एएमपीआरआई भोपाल से वरिष्ठ वैज्ञानिक डॉ. मनोज गुप्ता ने नैनोडिवाइसेस पर ज्ञानवर्धक व्याख्यान प्रस्तुत किया। उन्होंने ग्रेफीन तथा बॉक्स साइड को संरचना को समझाया। केंद्रीय विश्वविद्यालय हरियाणा से डॉ. अंकुश बिज ने नैनोसाफर की उपयोगिता एवं गुणधर्मों को बताया। आईआईटी भिलाई से डॉ. महावीर शर्मा ने तारों तथा अंतरिक्ष से संबंधित विवरण बताया साय्यासाची घोष के द्वारा। कोमनस विश्वविद्यालय ब्रिटिशलावा से डॉ. सातु अत्री ने अपने व्याख्यान से पर्यावरण से संबंधित पानी की शुद्धि के लिए फेराइड मटेरियल की उपयोगिता पर प्रकाश डाला। इसके साथ विभिन्न राज्यों से सम्मिलित शोधार्थियों ने अपने शोध पत्र प्रस्तुत किए। विभिन्न सत्रों को प्रो. एस.जे. बोबले, प्रो. नारायण प्रसाद अधिकारी, डॉ. महावीर शर्मा, डॉ. आर. के. मिश्रा, डॉ. शोभा वेमपति, डॉ. जगजीत कौर सलुजा, डॉ. विकास दुबे, डॉ. सुधाका पात्र, डॉ. साय्यासाची घोष, डॉ. कुसुमजली देशमुख द्वारा सफलतापूर्वक संचालन किया गया।

कार्यक्रम को सफल बनाने में भौतिक शास्त्र के समस्त शैक्षणिक एवं अशैक्षणिक, शोधार्थी एम.एससी द्वितीय एवं चतुर्थ सेमेस्टर के विद्यार्थियों का योगदान रहा। कार्यक्रम के दौरान विभिन्न विभागों के प्राध्यापक शोधकर्ता एवं विद्यार्थी उपस्थित रहे। संयोजक डॉ. जगजीत कौर एवं सचिव डॉ. अभिषेक कुमार मिश्रा के अनुसार इस अंतरराष्ट्रीय सम्मेलन के द्वितीय दिन आई.आई.टी. भिलाई के मिथिला हॉल में विभूवन विश्वविद्यालय, कामांडू नेपाल से प्रो. नारायण प्रसाद अधिकारी, थोरांमेश्वर अधिकारी, आई.एस.बी.एम विश्वविद्यालय से डॉ. एन.कुमार स्वामी, आईआईटी भिलाई से डॉ. साय्यासाची घोष, डॉ. शोभा वेमपति, डॉ. पद्मावती श्रीवास्तव, डॉ. आर. के. मिश्रा, डॉ. ओमप्रकाश के व्याख्यान होंगे। इसी के साथ विभिन्न राज्यों से सम्मिलित शोधार्थियों द्वारा पोस्टर प्रस्तुतिकरण भी होगा।

## रोबोटिक्स कृत्रिम बुद्धिमत्ता पर हुई चर्चा

# विज्ञान एवं यांत्रिकी में नवीनतम टेक्नोलॉजी के सहयोग से देश का सकरात्मक विकास संभव

कार्नर  
न्यूज



शासकीय विश्वनाथ यादव तामस्कर स्नातकोत्तर स्वशासी महाविद्यालय, दुर्ग एवं आईआईटी भिलाई के संयुक्त तत्वावधान में 3 दिवसीय अंतर्राष्ट्रीय सम्मेलन रिसेंट ट्रेड्स इन साइंस एंड इंजीनियरिंग का उद्घाटन सरस्वती वंदना, राज्य गीत एवं दीप प्रज्ज्वलन कर किया गया।



भिलाई। अंतर्राष्ट्रीय सम्मेलन में मुख्य अतिथि प्रो. एन वी रमणा राव निदेशक, राष्ट्रीय प्रौद्योगिकी संस्थान रायपुर ने अपने उद्घोषण में विज्ञान एवं यांत्रिकी से संबंधित नवीनतम घटनाओं के बारे में बताते हुए कहा कि विज्ञान एवं यांत्रिकी में नवीनतम टेक्नोलॉजी के सहयोग से देश का सकरात्मक विकास संभव हो सकता है। उन्होंने विज्ञान एवं यांत्रिकी विषय पर छत्तीसगढ़ में अंतर्राष्ट्रीय सम्मेलन आयोजित करने पर प्रसन्नता व्यक्त करते हुए महाविद्यालय एवं आईआईटी भिलाई के शोध के क्षेत्र में योगदान की सराहना की। संयोजक डॉ. जगजीत कौर सलूजा ने इस कार्यक्रम की रूपरेखा एवं सम्मेलन किस प्रकार शोध विद्यार्थियों एवं अनुसंधानों से जुड़े प्राध्यापकों के लिए उपयोगी होगा, इस प्रकाश डाला। उन्होंने कहा कि इस सम्मेलन में 42 मौखिक प्रस्तुतिकरण तथा 31 पोस्टर प्रस्तुतिकरण होंगे। एलएसआई अध्यक्ष डॉ. के व्ही आर मूर्ति ने इस सम्मेलन के माध्यम से कहा कि हम विद्वानों और वैज्ञानिकों के साथ-साथ यह सुनिश्चित करने की प्रमुख जिम्मेदारी है कि दुनिया आने वाली पीढ़ियों के लिए विज्ञान एवं इंजीनियरिंग से सुसज्जित हो।



### बायोमैडिकल के क्षेत्र में योगदान के विषय में बताया

द्वितीय टेक्नोकल सत्र में मुख्य प्रौद्योगिकी विश्वविद्यालय पोलैंड से डॉ. मार्क मिचलास्का डोमनस्का ने लोहा एवं एरगुमिनियम के मिश्रधातु के एनोडजिंग के बारे में बताया। साथ ही अनेक विशेषज्ञों ने अपने विचार रखे। तृतीय टेक्नोकल सत्र में आईआईटी भिलाई डॉ. ध्रुव प्रताप सिंह ने माइक्रोरोबोट्स की संरचना एवं उपयोगिता पर अपना व्याख्यान प्रस्तुत करते हुए माइक्रोरोबोट्स को रसायनिक सेंसिंग तथा जीवाणु सेंसिंग के लिए उपयोगी बताया। इसके साथ विभिन्न राज्यों से सम्मिलित शोधार्थियों ने अपने शोध पत्र पत्र प्रस्तुत किए। विभिन्न सत्रों की प्रो एस जे दोबले, प्रो नराराण प्रसाद अधिकारी, डॉ. महेश्वर शर्मा, डॉ. आरके मिश्रा, डॉ. शेषा वेमपति, डॉ. जगजीत कौर सलूजा, डॉ. विकास दुबे, डॉ. सुधांशु पात्र, डॉ. राकेशरावी घोष, डॉ. कुसुमजली देशमुख द्वारा संवादन किया गया।

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<https://drive.google.com/file/d/15-wCcjzymrS-Tv10cB2Mdb6TNIJWYnPZ/view?usp=drive link>

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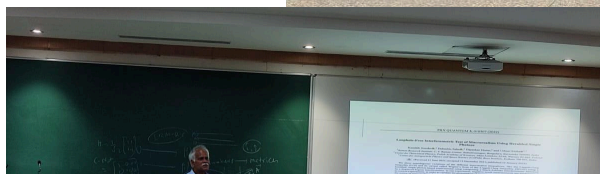


## “Extension Activities of Physics Department”



The Physics Department of Govt. V.Y.T.PG.. Autonomous College, Durg organized the Extension Activities under which we visited “Indian Institute of Technology Bhilai” on 09/10/2023 (Monday). Without missing this wonderful opportunity.

24 Students from M.Sc. Sem - I and 21 Students from M.Sc. Sem - III Visited the Campus under the Supervision of Professor Dr. Siteshwari Chandrakar and faculty Member Mr. Bhupendra Das . As soon as we reached the Campus, the faculty there gave us a warm welcome. After that, there was a Lecture on “Emergence of Quantum Mechanics on 21st Century” by Scientist Dr. Prashant Panigrahi, the Director of IISER, Kolkata.



He Enlightened all with his knowledge and wisdom. There was a great enthusiasm among the Students for this wonderful opportunity. Dr. Panigrahi told that European Union has highest Concentration of Quantum talent but also India is working hard to achieve this goal.

Dr. Panigrahi Explained Very nicely about Quantum Computers and Quantum gates. All the listeners were blessed after receiving such a Soothing knowledge from him. After this lecture, the Students Visited the Evocative and Spacious Campus of I.I.T. Bhilai.



The Scholars and M.sc. students of I.I.T Bhilai helped us lot to visit the campus and lab their names include Laxmi Narayan, Purshottam, Utkarsh, Saumya Tiwari. The HOD of Physics of I.I.T Bhilai Dr. S. Patra Said that we'll be given more opportunities to visit the Campus.

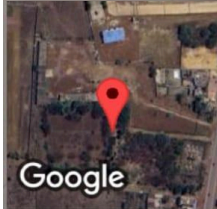
साइंस कॉलेज के भौतिकशास्त्र सोसाइटी द्वारा सेजस जेवरा सिरसा उच्चतर माध्यमिक विद्यालय में  
एक्सटेंशन एक्टिविटी का प्रभावशाली आयोजन

शासकीय विश्वनाथ यादव तामस्कर पीजी स्वशासी महाविद्यालय दुर्ग के भौतिक शास्त्र सोसाइटी एवं भौतिकी विभाग द्वारा स्वामी आत्मानंद उत्कृष्ट हिन्दी माध्यम विद्यालय जेवरा सिरसा में स्नातकोत्तर के विद्यार्थियों द्वारा शुक्रवार, 5 जनवरी 2024 को एक्सटेंशन एक्टिविटी का आयोजन किया गया। माननीय प्रधानमंत्री महोदय की विकसित भारत की अभिकल्पना को साकार करने हेतु आज कक्षा ११वीं एवं १२वीं के विद्यार्थियों को भौतिक शास्त्र की विभिन्न अवधारणाओं को प्रयोग के माध्यम से समझाया गया। इसके साथ ही कक्षा नवमी, दसवीं के विद्यार्थियों हेतु विज्ञान क्विज का आयोजन किया गया जिसे रोचक एवं प्रभावी तरीके से स्मार्ट क्लास में संचालित किया गया। विद्यार्थियों ने खेल खेल में क्विज के माध्यम से विज्ञान से संबंधित तथ्यों को न सिर्फ समझा और प्रसन्नतापूर्वक व आनंदपूर्वक इस प्रतियोगिता में भाग लिया अपितु उत्साह पूर्ण प्रतिभागिता भी दर्शाई। गौर तलब है कि विद्यार्थियों के मध्य वैज्ञानिक अवधारणा को प्रयोग के माध्यम से तथा एक्टिविटी के माध्यम से समझाने हेतु तथा विद्यार्थियों में वैज्ञानिक दृष्टिकोण वैज्ञानिक क्षमता, वैज्ञानिक अभिवृत्ति विकसित करने के लिए भौतिकी विभाग द्वारा आयोजित किया गया एक अभिनव कार्यक्रम था। प्राचार्य डॉ. सिद्धकी सर ने स्नातकोत्तर के विद्यार्थियों को भविष्य के वैज्ञानिक तैयार करने हेतु अपना योगदान देने के लिए सराहना की। इस कार्यक्रम में भौतिकी विभाग की विभाग अध्यक्ष डॉ. (श्रीमती) जगजीत कौर सलूजा, डॉ. आर एस सिंग, डॉ. अनीता शुक्ला, डॉ. सीतेश्वरी चंद्राकर, डॉ. अभिषेक मिश्रा, डॉ. कुसुमांजलि देशमुख, श्री भूपेंद्र दास के मार्गदर्शन में तथा प्राचार्य जेवरा सिरसा श्रीमती ज्योत्सना गुप्ता, भौतिकी व्याख्याता श्रीमती सपना सोनी के निर्देशन में तथा श्रीमती चंचल टिकरिहा, श्रीमती भारती बिष्ट, श्रीमती लेखा कंवर, श्रीमती राजभारती शर्मा तथा समस्त स्टाफ के सहयोग से इस एक्सटेंशन एक्टिविटी का सफल आयोजन किया गया।





GPS Map Camera



Khapri Alias Pipardih, Chhattisgarh, India  
68X4+64J, Khapri Alias Pipardih, Chhattisgarh 491001, India  
Lat 21.248032°  
Long 81.305492°  
05/01/24 12:31 PM GMT +05:30



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## **Extension Activity of Physics Department**

The physics department of Govt. V.Y.T.PG. Autonomous College, Durg has organized the Extension Activity at Govt. Atmanand English Medium college durg. The main moto of this Extension activity was organized for UG students, to teach them physics Experiments.



Saturday on 20th January our PG student's department of physics, shared their experimental knowledge to students of B.Sc. 1<sup>st</sup> year and B.Sc. 2<sup>nd</sup> year of Govt. Atmanand English Medium College Durg. Our PG students trained all the students regarding the physics experiments.



Our PG students before reaching the Atmanand college recollect their knowledge and collect all the queries related to the experiment and practiced to give their best to their juniors.



With warm confidence, 21 students from M.Sc. previous, attended the extension activity. Students demonstrate their knowledge and give efforts to explain each and every concept in deep of every experiment to their juniors.

Some Experiments of 1<sup>st</sup> year students that performed and explained by our PG students.

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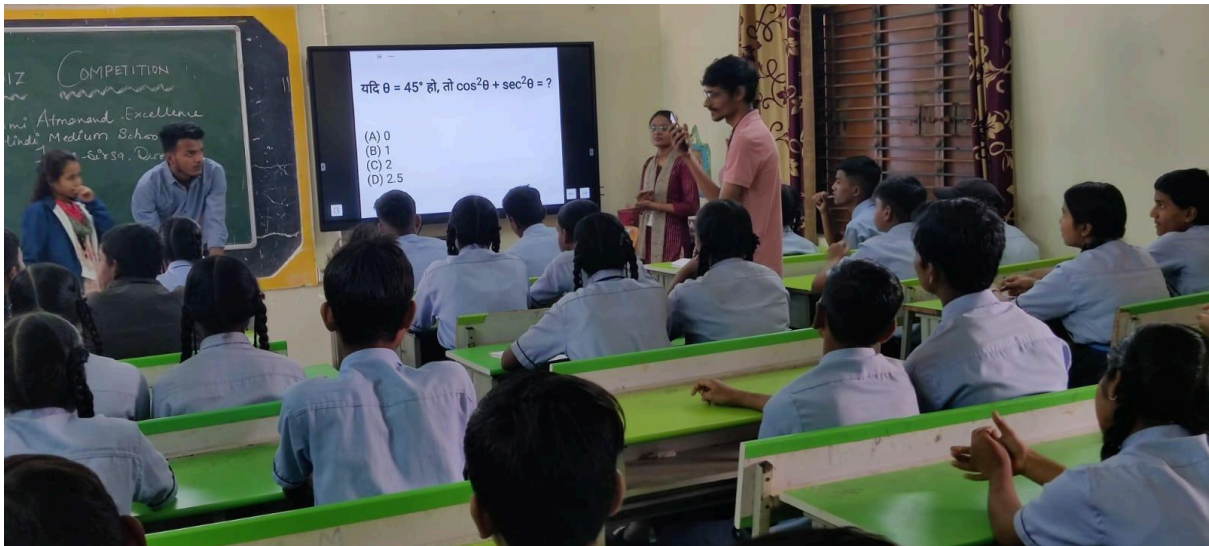


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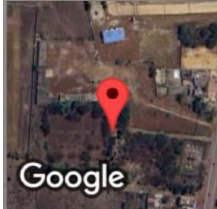
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एक्सटेंशन एक्टिविटी का प्रभावशाली आयोजन

शासकीय विश्वनाथ यादव तामस्कर पीजी स्वशासी महाविद्यालय दुर्ग के भौतिक शास्त्र सोसाइटी एवं भौतिकी विभाग द्वारा स्वामी आत्मानंद उत्कृष्ट हिन्दी माध्यम विद्यालय जेवरा सिरसा में स्नातकोत्तर के विद्यार्थियों द्वारा शुक्रवार, 5 जनवरी 2024 को एक्सटेंशन एक्टिविटी का आयोजन किया गया। माननीय प्रधानमंत्री महोदय की विकसित भारत की अभिकल्पना को साकार करने हेतु आज कक्षा ११वीं एवं १२वीं के विद्यार्थियों को भौतिक शास्त्र की विभिन्न अवधारणाओं को प्रयोग के माध्यम से समझाया गया। इसके साथ ही कक्षा नवमी, दसवीं के विद्यार्थियों हेतु विज्ञान क्विज का आयोजन किया गया जिसे रोचक एवं प्रभावी तरीके से स्मार्ट क्लास में संचालित किया गया। विद्यार्थियों ने खेल खेल में क्विज के माध्यम से विज्ञान से संबंधित तथ्यों को न सिर्फ समझा और प्रसन्नतापूर्वक व आनंदपूर्वक इस प्रतियोगिता में भाग लिया अपितु उत्साह पूर्ण प्रतिभागिता भी दर्शाई। गौर तलब है कि विद्यार्थियों के मध्य वैज्ञानिक अवधारणा को प्रयोग के माध्यम से तथा एक्टिविटी के माध्यम से समझाने हेतु तथा विद्यार्थियों में वैज्ञानिक दृष्टिकोण वैज्ञानिक क्षमता, वैज्ञानिक अभिवृत्ति विकसित करने के लिए भौतिकी विभाग द्वारा आयोजित किया गया एक अभिनव कार्यक्रम था। प्राचार्य डॉ. सिद्धकी सर ने स्नातकोत्तर के विद्यार्थियों को भविष्य के वैज्ञानिक तैयार करने हेतु अपना योगदान देने के लिए सराहना की। इस कार्यक्रम में भौतिकी विभाग की विभाग अध्यक्ष डॉ. (श्रीमती) जगजीत कौर सलूजा, डॉ. आर एस सिंग, डॉ. अनीता शुक्ला, डॉ. सीतेश्वरी चंद्राकर, डॉ. अभिषेक मिश्रा, डॉ. कुसुमांजलि देशमुख, श्री भूपेंद्र दास के मार्गदर्शन में तथा प्राचार्य जेवरा सिरसा श्रीमती ज्योत्सना गुप्ता, भौतिकी व्याख्याता श्रीमती सपना सोनी के निर्देशन में तथा श्रीमती चंचल टिकरिहा, श्रीमती भारती बिष्ट, श्रीमती लेखा कंवर, श्रीमती राजभारती शर्मा तथा समस्त स्टाफ के सहयोग से इस एक्सटेंशन एक्टिविटी का सफल आयोजन किया गया।





GPS Map Camera



Khapri Alias Pipardih, Chhattisgarh, India  
68X4+64J, Khapri Alias Pipardih, Chhattisgarh 491001, India  
Lat 21.248032°  
Long 81.305492°  
05/01/24 12:31 PM GMT +05:30



**GOVT. V.Y.T. PG AUTONOMOUS COLLEGE, DURG, CHHATTISGARH**

**(Erstwhile: Govt. Arts & Science College, Durg)**

**CPE Phase- III By UGC**

**Awarded Star College by DBT, New Delhi**



## **Extension Activity of Physics Department**

The physics department of Govt. V.Y.T.PG. Autonomous College, Durg has organized the Extension Activity at Govt. Atmanand English Medium college durg. The main moto of this Extension activity was organized for UG students, to teach them physics Experiments.



Saturday on 20th January our PG student's department of physics, shared their experimental knowledge to students of B.Sc. 1<sup>st</sup> year and B.Sc. 2<sup>nd</sup> year of Govt. Atmanand English Medium College Durg. Our PG students trained all the students regarding the physics experiments.



Our PG students before reaching the Atmanand college recollect their knowledge and collect all the queries related to the experiment and practiced to give their best to their juniors.



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**Session 2023-2024**

**DEPARTMENT OF PHYSICS**



**REPORT ON**

**Extension Activity At**

**“Indira Gandhi National Tribal University”**

**(29-30 March, 2024)**

**(Amarkantak, Madhya Pradesh)**

**SUBMITTED BY**

**M.Sc. - II (SEM)**

**Students**

## ACKNOWLEDGMENT

As educational trips increase our mental skills, and we are able to understand the things practically. Moreover, at present scenario, only theory is not important, but at the sometime, practical knowledge is important too.

We are grateful to the **principle of our college, Dr. MA Siddiqui**, who permitted us to go on this educational tour.

Also, we are thankful to **The Head of Department Physics, Dr. Jagjeet Kaur Saluja**, who promptly supported us for this trip to **Indira Gandhi National Tribal University, Amarkantak** for an educational tour. We become familiar with many more new version of instruments. A special thanks to **Dr. Rama Shankar Singh, Professor, Department of Physics**, for Coordinate with officials of Amarkantak University and making all the arrangements in a short time.

We're very grateful to humble voice Chancellor of IGNTU Professor **Sri Prakash Mani Tripathi**, who gave us a golden opportunity to visit IGNTU at the same time, we are very grateful to the teaching and non-teaching staff of IGNTU.

Also, we are indebted to **Dr. Siteshwari Chandraker Ma'am and Bhupendra Das Sir** who accompanied us on this tour. This would have not been successful without their care, patience and guidance.

Apart from the University, we also visited many temples and historical monuments. This trip will always be memorable for all of us.

## STUDENT LIST (VISITED THE IGNTU)

S.N.	Name of Student
1.	Upasana Dilliwar
2.	Vandana Sahu
3.	Asha Sonwani
4.	Rupali Sahu
5.	Tomeshwari Patel
6.	Damini Verma
7.	Vaishali Tamrakar
8.	Chanchal Sahu
9.	Lokeshwari Yadav
10.	Triveni koreti
11.	Ashish Sahu
12.	Laxminarayan
13.	Chandrasekhar Verma
14.	Rupesh
15.	Sevak Ram
16.	Chandrakant Dewangan
17.	Bhikham Chand
18.	Indramohan
19.	Sandeep Barla
20.	Sushil joshi

## INDIRA GANDHI NATIONAL TRIBAL UNIVERSITY

**Indira Gandhi National Tribal University (IGNTU)** is a Central University located in Amarkantak Madhya Pradesh, India. It was established through Indira Gandhi National Tribal University Act, 2007 by government of India in 2007.

The Vice Chancellor of this university is Honorable Professor Sri Prakash Mani Tripathi, located in Tribal Belt. This university is poised for meeting the expectations of the society in general and triple population in particular. We all visited the Physics, Chemistry and Biotechnology Departments under faculty of science in IGNTU.

We have seen many instruments and become familiar with their workings.

Descriptions of these instruments are listed in the following pages.



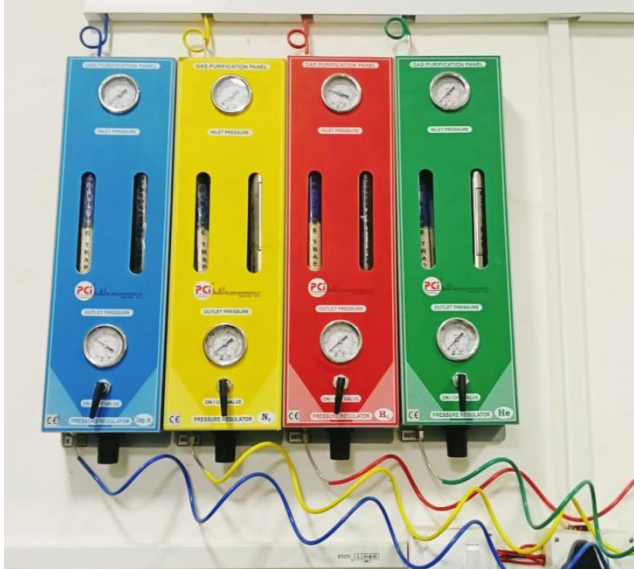
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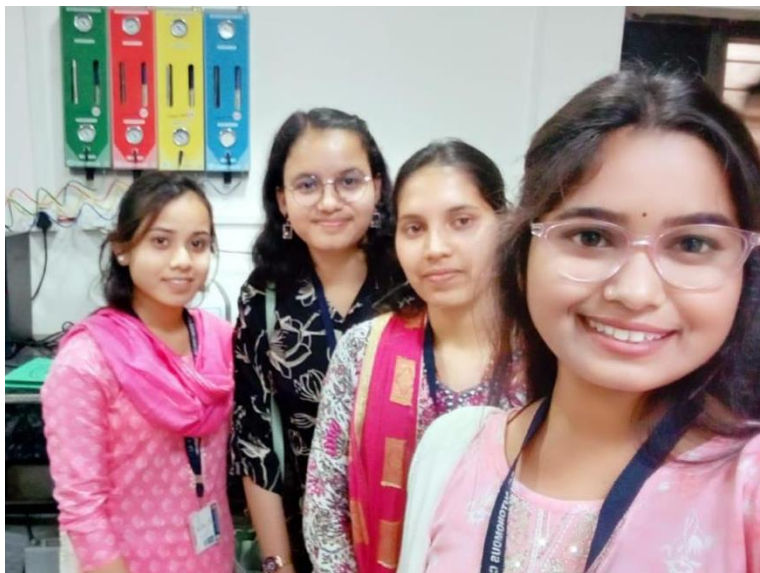
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Gas purification involves the removal of vapor phase impurities from gas streams. The processes which have been developed to accomplish gas purification vary from simple once through operations to complex multiple- step recycle systems. In many cases, the process complexities arise from the need for recovery of the impurity or reuse of the material employed to remove it.

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## MICROBIOLOGICAL SAFETY CABINET SYSTEMS

A biosafety cabinet, also called a biological safety cabinet, or microbiological safety cabinet, is an enclosed ventilated laboratory workspace for safely working with materials contaminated with pathogens requiring a defined biosafety level.



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# MEDICAL FREEZERS FOR PRESERVING SENSITIVE MATERIALS

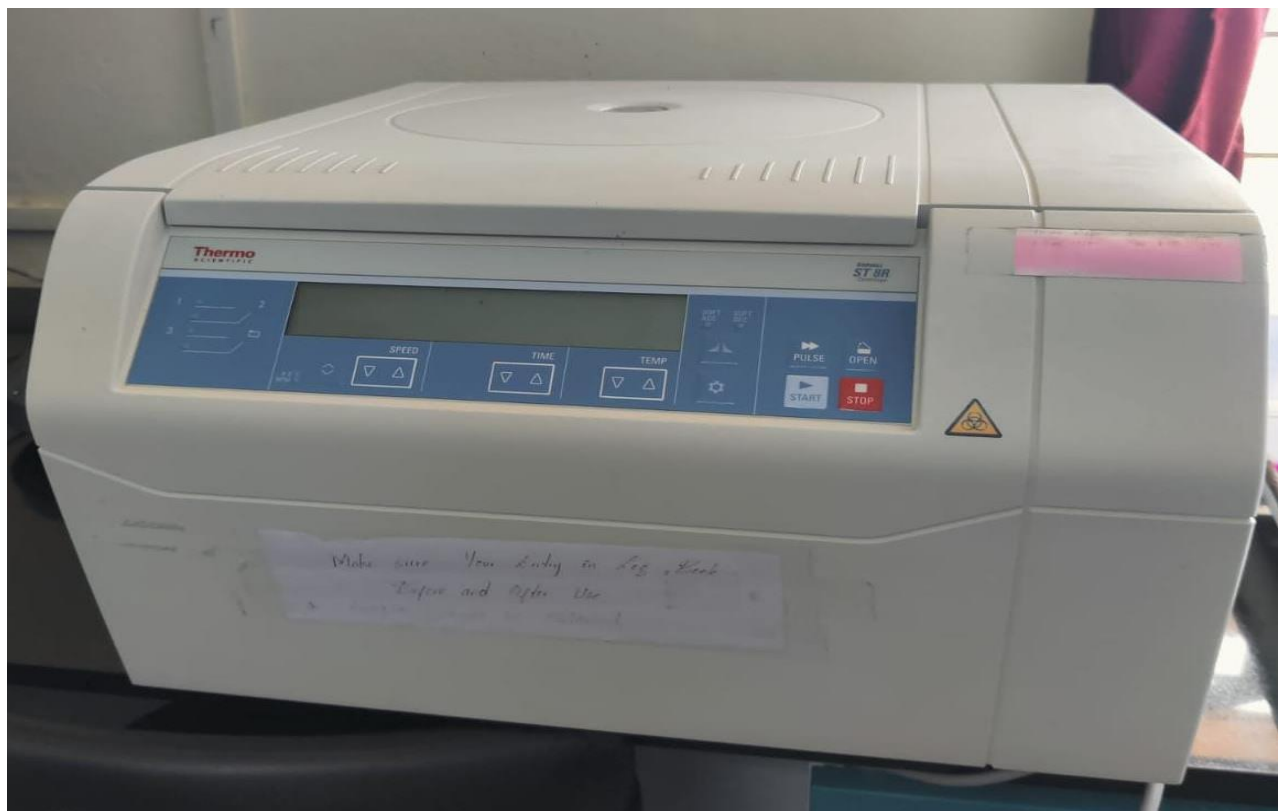
Medical freezers are essential equipment for storing and preserving sensitive materials. Medical freezers use refrigeration to keep the freezer compartment at a low temperature. The typical components of refrigeration system are a compressor, a condenser and an evaporator and an expansion valve. Medical freezers commonly have specialized features such as precise temperature controls, alarms and backup power systems to keep sensitive medical materials to a consistent and safe temperature.



## CENTRIFUGE 5418 R MICRO CENTRIFUGE

A micro centrifuge, also called a microfuge is used to spin small (2 ml or less) liquid samples at high speed (generally tens of thousands time g-force). The products differ depending upon the sample tube size and the number of sample tubes the micro centrifuges can hold a run. Micro centrifuge tubes are much smaller than standard tubes, generally in the 1.5 ML to 2 ML range, through models that support larger or smaller tubes can be purchased.

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## INSTRUMENT OF HOT AIR OVEN

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development with the optional condition under artificial condition of temperature, humidity, oxygen and CO<sub>2</sub> levels.

## KAPILDHARA WATERFALL

Kapildhara is the first waterfall of river Narmada from its origin. It is roughly 6 km, from the Narmada Temple in Amarkantak. The waterfalls from the height of around 100 feet with tremendous force. The place at the top has Kapil Muni Ashram.



As per the purans it is said that Kapil Muni tried to stop Narmada at this place. When it started to flow in the rivers direction. This place is also important from the perspective of those who wish to take Narmadashwar home further down 1 km in Dugdha Dhara.



## NARMADA UDGAM TEMPLE

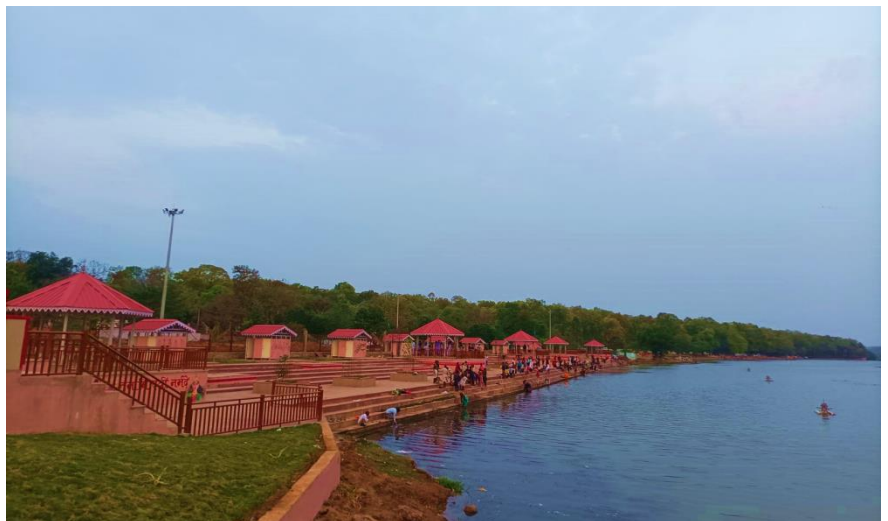
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There is no concrete evidence about the construction of Narmada Mandir here, historical events shows that it was built by Kadchli around 12<sup>th</sup> Century. Narmada udgam kund was built by Rewa Nayak.

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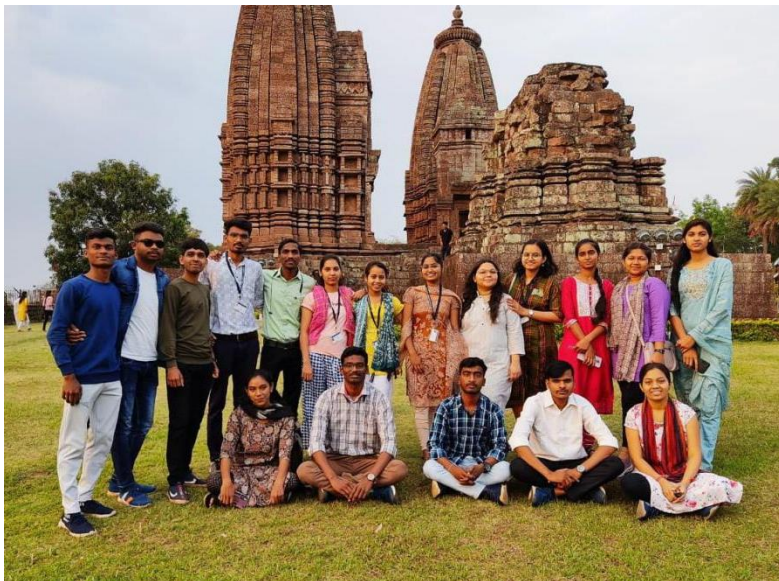


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## GLIMPSES OF OUR TOUR









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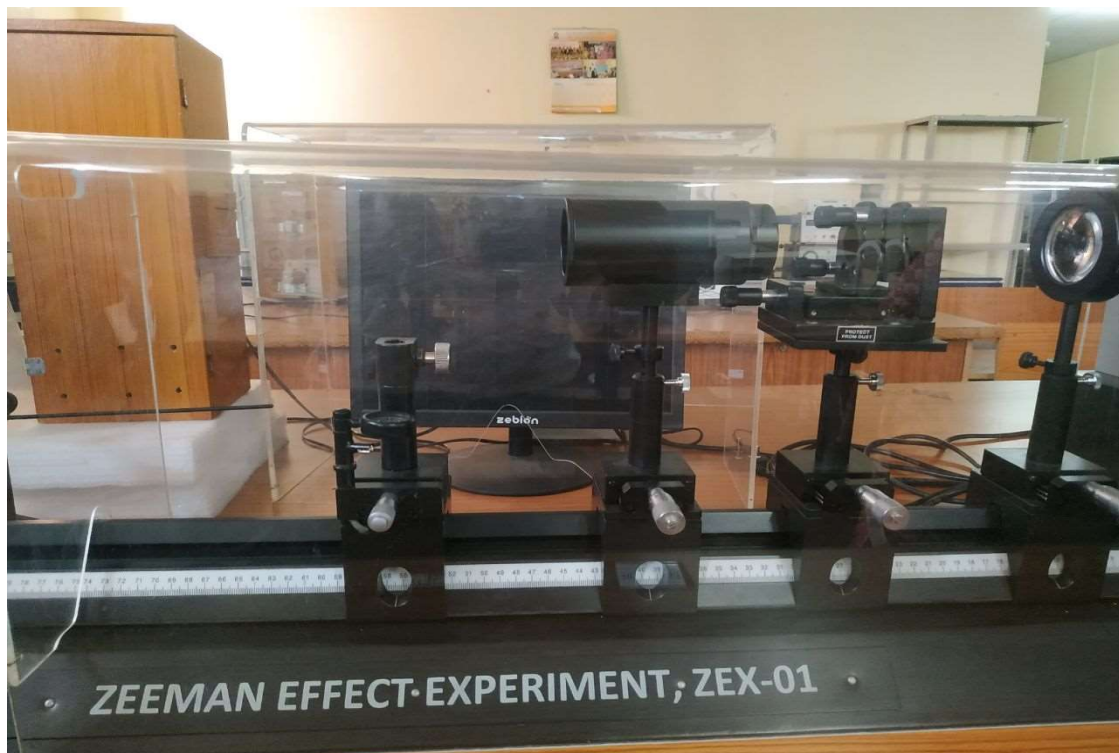
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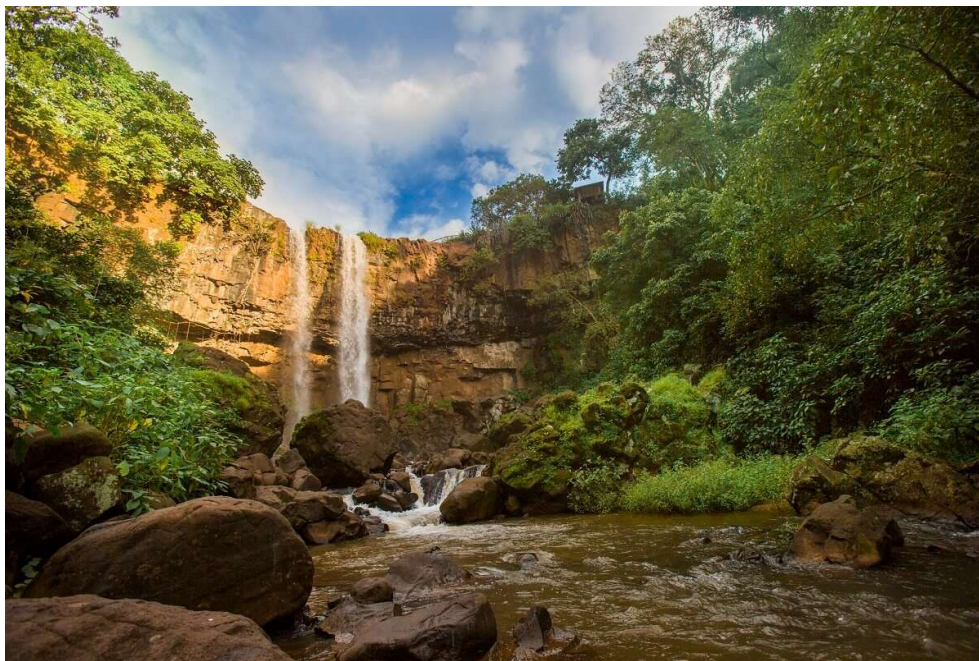
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This waterfall is known to be the first waterfalls of the river Narmada, it is located just 6 km towards the north-west of the Narmadakund Temples. The waterfall is named after the sage Kapil Muni, who is believed to have meditated at this place. The waterfall stands tall at about a 100 ft tall and is surrounded by lush green environs. It is recommended to go during the monsoon season to truly marvel at the gushing force of the falls.



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## GLIMPSES OF OUR TOUR







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- 1. Jhalak verma**
- 2. Kavita sahu**
- 3. Payal Thakur**
- 4. Kushal Salecha**
- 5. Tejasvi Yadav**
- 6. Deseema**
- 7. Vishwajeet**
- 8. Bhimeshwari**
- 9. Bhuneshwari**
- 10. Neema**
- 11. Gamini Patel**
- 12. Lalita**
- 13. Kareena**
- 14. Kavita Sahu**
- 15. Vaman Lal**
- 16. Minakshi sahu**
- 17. Lachchhandai Kashyap**
- 18. Vibha Suktel**
- 19. Khomeshwari**
- 20. Rahul**

## साइंस कॉलेज के भौतिकी विभाग में अतिथि व्याख्यान का आयोजन

दिनांक 03/02/2024 को शा. विश्वनाथ यादव तमस्कार स्वशासी महाविद्यालय के भौतिक शास्त्र विभाग में, फिज़िक्स सोसाइटी के तत्वाधान में अतिथि व्याख्यान का आयोजन किया गया । जिसमें आर टी एम नागपुर यूनिवर्सिटी नागपुर महाराष्ट्र के भौतिक शास्त्र विभाग के प्राध्यापक डॉ सुभाष बाबुराव कोंडवार तथा डॉ उमेश ए पालिकुंडवार मुख्य व्याख्याता के रूप में उपस्थित रहे ; मुख्य व्याख्याताओं ने नैनो टेक्नॉलजी तथा एक्स-रे अवशोषण स्पेक्ट्रास्कोपी पर विस्तृत ज्ञान साझा किया । महाविद्यालय के प्राचार्य डॉ एम ए सिद्दीकी ने कार्यक्रम के आयोजन के लिए विभाग के प्रयासों की सराहना की । इस दौरान विभाग की विभागाध्यक्ष डॉ जे के सलूजा, प्राध्यापक डॉ आर एन सिंह, डॉ अनिता शुक्ला, डॉ सीतेश्वरी चंद्राकार, डॉ अभिषेक मिश्रा एवं अतिथि व्याख्याता डॉ ममता परगनिहा, भूपेन्द्र दास, नीरज यादव, पायल नामदेव, खुशबू साहू तथा एम एस सी पूर्व और एम एस सी अंतिम के छात्रों की सराहनीय सहभागिता रही ।

To,

The Principal,  
Govt. V.Y.T. PG Autonomous College  
Durg

Subject - Permission for Guest Lecture  
Under PMUSHA.

R/sir


This is to your kind attention  
that physics department is organising  
two lectures by Dr. S.B. Kondawar and  
Dr. V.A. Polikundwar Professor RTM University  
Nagpur on 03.02.2024.

The lecture will be a part of Guest  
lecture series sponsored by PMUSHA in our  
Institute.

So kindly permit us for the same  
and obliged.

Thanking you

Regards

  
29/01/2024

for HoD, Physics Dept.

Date  
29/01/24



OFFICE OF THE PRINCIPAL  
GOVT. V. Y. T. PG AUTONOMOUS COLLEGE, DURG (C.G.) INDIA

(Awarded A+ Grade by NAAC, Bengaluru)  
Phone No. / Fax No. : 0788-2359688  
Website : www.govtsciencecollegedurg.ac.in  
E-Mail : pprinci2010@gmail.com



Ref. No. 3070

Durg / Date : 30/1/24

To,

Dr. Subhash Baburao Kondawar  
Professor,  
Department of Physics,  
RTM Nagpur University, Nagpur  
Maharashtra

Subject : Invitation for delivering a lecture.

Sir,

It is a matter of great pleasure and privilege to invite you to deliver a lecture for PG students of Department of Physics on 3<sup>rd</sup> February 2024, 11:00 am at Dr. C V Raman Smart class of our department.

Sir surely your expertise will be beneficial for our students. This will not only give an exposure to our students but also provide an opportunity to connect with you and your institution.

The Lecture will be a part of Guest Lecture Series, Sponsored by PMUSHA in our Institute.

Hope you would accept our invitation.

Principal

Govt. V. Y. T PG Autonomous, College

Durg (C.G.)

Principal

Govt V.Y.T.P.G. Autonomous

College Durg (C.G.)



OFFICE OF THE PRINCIPAL  
GOVT. V. Y. T. PG AUTONOMOUS COLLEGE, DURG (C.G.) INDIA

(Awarded A\* Grade by NAAC, Bengaluru)  
Phone No. / Fax No. : 0788-2359688  
Website : www.govtsciencecollegedurg.ac.in  
E-Mail : pprinci2010@gmail.com



Ref. No. 3670

Durg / Date : 20/1/24

To,

Dr. Umesh A. Palikundwar  
Associate Professor,  
Department of Physics,  
RTM Nagpur University, Nagpur  
Maharashtra

Subject : Invitation for delivering a lecture.

Sir,

It is a matter of great pleasure and privilege to invite you to deliver a lecture for PG students of Department of Physics on 3<sup>rd</sup> February 2024, 11:00 am at Dr. C V Raman Smart class of our department.

Sir surely your expertise will be beneficial for our students. This will not only give an exposure to our students but also provide an opportunity to connect with you and your institution.

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Hope you would accept our invitation.

Principal

Govt. V. Y. T PG Autonomous, College

Durg (C.G.)

Principal  
Govt V.Y.T.P.G. Autonomous  
College Durg (C.G.)





## DEPARTMENT OF PHYSICS

Govt. V.Y.T. PG Autonomous College, Durg,  
(Chhattisgarh), India

**Email :** [physics@govtsciencecollegedurg.ac.in](mailto:physics@govtsciencecollegedurg.ac.in)

**Facebook :** [www.facebook.com/physicsvytpg](http://www.facebook.com/physicsvytpg)



## REPORT OF PATENTS GRANTED

Two patents were granted

1. Thermoluminescence and kinetic parameters of gamma exposed  $\text{Y}_2\text{Zr}_2\text{O}_7: \text{Gd}^{3+}$  Phosphors
2. Composite nature thermo luminescence studies in  $\text{Dy}^{3+}$  activated  $\text{Sr}_2\text{ZnSi}_2\text{O}_7$  phosphor

One Patent is awaited for grant



REPUBLIC OF SOUTH AFRICA

REPUBLIEK VAN SUID AFRIKA

PATENTS ACT, 1978

## CERTIFICATE

In accordance with section 44 (1) of the Patents Act, No. 57 of 1978, it is hereby certified that:

**SITESHWARI CHANDRAKAR; JAGJEET KAUR; VIKAS DUBEY; NEHA DUBEY**

Has been granted a patent in respect of an invention described and claimed in complete specification deposited at the Patent Office under the number

**2023/07886**

A copy of the complete specification is annexed, together with the relevant Form P2.

In testimony thereof, the seal of the Patent Office has been affixed at Pretoria with effect from the 28<sup>th</sup> day of February 2024

Registrar of Patents



REPUBLIC OF SOUTH AFRICA



REPUBLIEK VAN SUID AFRIKA

PATENTS ACT, 1978

## CERTIFICATE

in accordance with section 44 (1) of the Patents Act, No. 57 of 1978, it is hereby certified that:

**RAMADHIN; JAGJEET K SALUJA; RAVI SHRIVASTAVA; VIKAS DUBEY**

Has been granted a patent in respect of an invention described and claimed in complete specification deposited at the Patent Office under the number

**2023/09238**

A copy of the complete specification is annexed, together with the relevant Form P2.

In testimony thereof, the seal of the Patent Office has been affixed at Pretoria with effect from the 24<sup>th</sup> day of April 2024

A handwritten signature in black ink, appearing to be 'D. J. T.', written over a dotted line.

Registrar of Patents

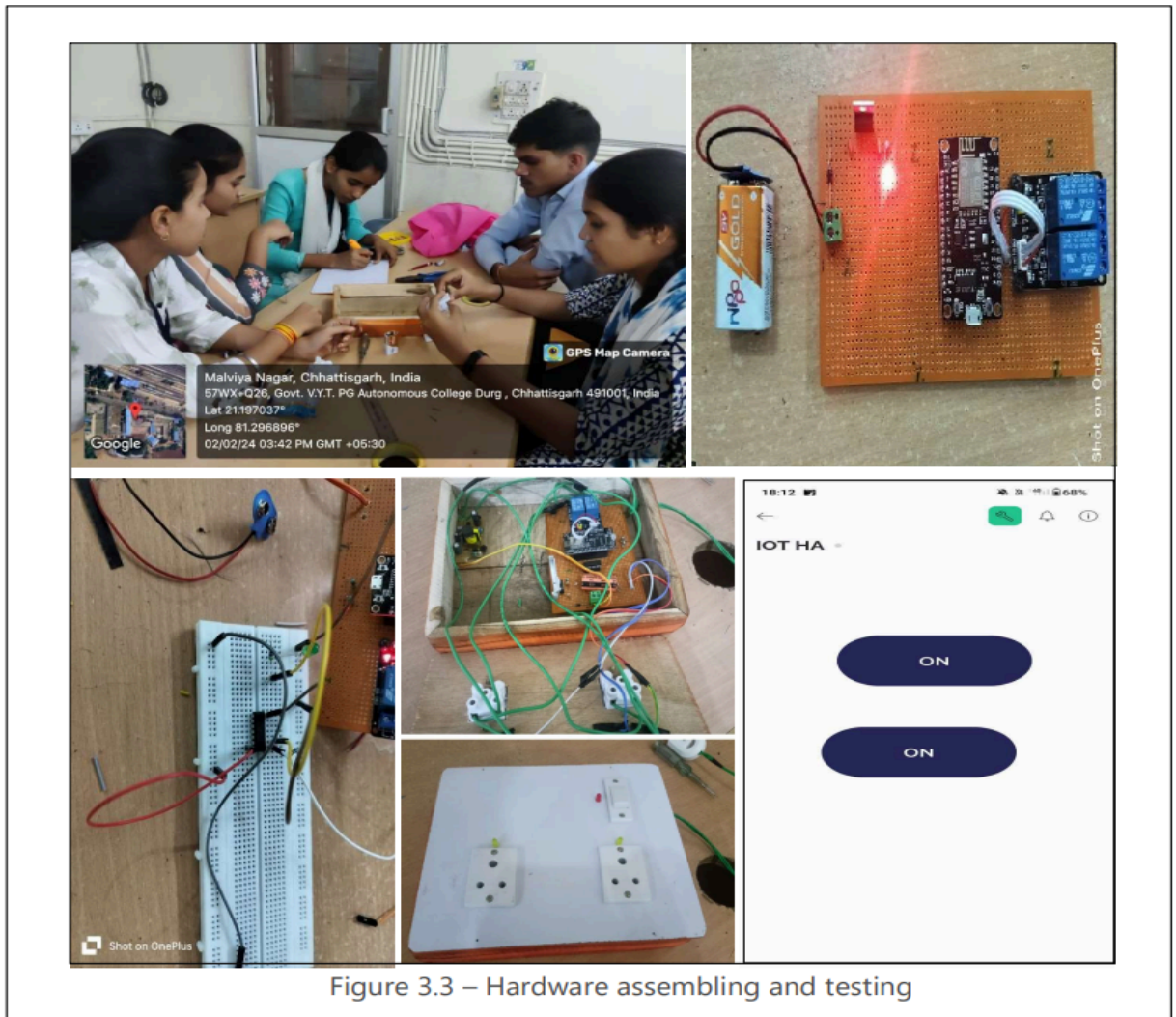


### **SKILL DEVELOPMENT PROGRAM 18 January to 07 February 2024**

A skill development program organized by department of physics on 18-01-2024 to 07-02-2024 funded by PM-USHA for M.Sc. IV Semester student. Under this Program student construct working model these are the following

**(1) IOT BASED HOME AUTOMATION-** Bhimeshwari, Deseema, Kavita Sahu, Khumendra and Neema

Home automation refers to the automatic way to control of house hold appliances, there are various systems used for home automation that is based on different microcontrollers and take different parameters to monitor and control the home appliances. The system providing facility to control of home appliances by IoT sensor and other communication devices efficiently.



**Working:** - We can control home appliances wirelessly using this switch board from distance. When we press on the ON button displayed on the app for the device 1, The light is switched ON. This light can be switched OFF, by pressing the same button again. Similarly, when the user presses on the ON button displayed on the app for the device 2 the light switched ON, the light can be switched OFF pressing same button again. The app for the device 2 the light switched ON; the light can be switched OFF pressing same button again.

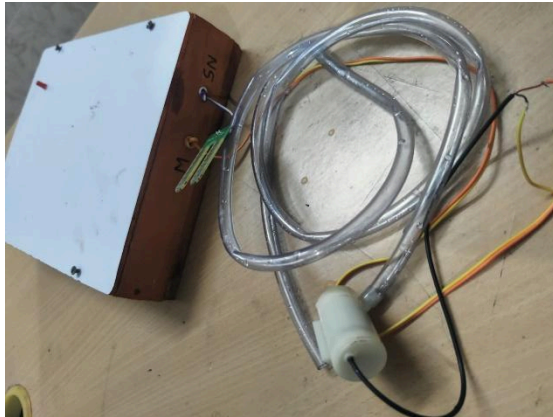
**APPLICATION:** - For controlling home appliances wirelessly from distance.

**(2) REAL DATA SOIL MONITORING SYSTEM** -by Kushal Salecha, Jhalak Verma, Kavyansh Sahu and Bhuneshwari

**Introduction:** This system measures the soil moisture level of the soil. It is an IoT based system, so it is connected with internet. The soil moisture level can be seen using BlynkIoT mobile app and also the water pump can be remotely controlled using the same app.

**Working:** This system is using Esp8266 wi-fi module as microcontroller, which is connected to a soil moisture sensor. The sensor reads the soil moisture level and send data to ESP8266 sends this data to the user interface like mobile, computer etc. There is a switch in user interface to control the water pump so we can water the plant by turning on the switch.

**Applications:** · Automatic irrigation: The system can be used to automatically irrigate crops, gardens, and lawns. This can help to save water and ensure that plants are getting the right amount of water. · Saves water: The system can help to save water by automatically irrigating plants only when they need it.



**(3)Real Time Digital Clock Pannel Board - By Tejashvi, Rahul, Gamini and Lachchandai**

**Hardware Setup:** The digital clock consists of a microcontroller (such as Arduino or Raspberry Pi), a real-time clock (RTC) module, and a display unit (LED, LCD, or OLED display).

**Internet Connectivity:** The microcontroller is connected to the internet using Wi-Fi, Ethernet, or other connectivity options.

**Time Synchronization:** The microcontroller retrieves the current time from an NTP (Network Time Protocol) server over the internet.

**Display:** The current time obtained from the NTP server is displayed on the digital display unit.

**Updating Time:** The clock periodically synchronizes with the NTP server to ensure accurate timekeeping.

**User Interface (optional):** Some clocks may have additional features such as alarm settings, temperature display, etc. Overall, the clock continuously updates itself by retrieving the current time from the internet, ensuring it remains accurate.

## Application

1. This clock is used in data logging applications.
2. It can be used in time stamps
3. As an alarm and timer.
4. As a simple clock in houses, offices etc.
5. It is also used in: -
  - a) Institute
  - b) Hospitals
  - c) Park
  - d) Railway Stations
  - e) Bus Stations
  - f) Shopping mall
  - g) Public place
  - h) Score board



#### **(4)Agriculture solar insert trapper \_ By Vaman Lal, Payal, Minakshi, Lalita and Vibha**

Solar insect trapper is a solar powered product use for trapping insects and flies.

Solar insect traps are important for several reasons.

- Firstly, they provide an environmentally friendly alternative to using pesticides, which can have adverse effects on people, animals, and the environment.
- Secondly, solar insect traps can efficiently control mosquitoes, which are carriers of infectious diseases, in areas where there is a high risk of infection.
- Additionally, solar insect traps can be used in terrains with limited access to power supply, such as rice fields and forests, allowing for effective monitoring and control of flying insects.
- Furthermore, solar insect traps have a simple structure, long service life, and good insect trapping effect, making them an effective tool for insect control.
- Overall, solar insect light traps offer a sustainable and effective solution for managing insect pests while minimizing the negative impacts on the environment and human health.





**(5) SOLAR BASED SMART PHONE CHARGER** – By Vishvjit , Eswari, Khomeshwari, Kavita and Kareena

**PRINCIPLE:** The Solar-Based Smartphone Charger operates on the principle of photovoltaics. Solar cells within the charger directly convert sunlight into electricity. By harnessing solar energy through built-in solar panels, the charger transforms sunlight into electrical energy, enabling the charging of smartphones.

**WORKING:** A solar smartphone charger utilizes solar panels to capture sunlight and convert it into electrical energy. This energy can either be stored in a battery or directly used to charge a phone via a USB connection. The charger typically incorporates photovoltaic cells that absorb sunlight, generating electricity through the photovoltaic effect. This eco-friendly solution facilitates phone charging even in off-grid locations or areas with limited access to conventional power sources.

**APPLICATION:** A solar-based smartphone charger finds utility in various scenarios, including:

- **Outdoor Activities:** Ideal for camping, hiking, or any outdoor pursuits where access to traditional power outlets is scarce.
- **Emergency Situations:** Provides a reliable power source during power outages or emergencies when electricity is unavailable.
- **Traveling:** Convenient for maintaining smartphone charge while on the move, particularly in remote or rural areas.
- **Sustainability:** Promotes the adoption of renewable energy sources for daily technological requirements, reducing dependence on fossil fuels.
- **Education:** Serves as a practical tool for teaching about renewable energy and sustainability by demonstrating the application of solar power in charging devices.





# PROJECT REPORT

ON

**“AUTOMATIC ALARMING SYSTEM FOR TRAIN”**

**SUBMITTED TO**

**GOVT. V.Y.T.PG. AUTONOMOUS COLLEGE DURG (C.G.)**



**MASTER OF SCIENCE IN PHYSICS**

**GUIDED BY**

**Dr. Santosh Mishra**

**SUBMITTED BY**

**Asha Sonwani**



**Session 2023-2024**

**DEPARTMENT OF PHYSICS**

**GOVT. V.Y.T.PG. AUTONOMOUS COLLEGE DURG (C.G.)**



# BHILAI INSTITUTE OF TECHNOLOGY, DURG

An Autonomous Institution | All UG Programs NBA Accredited | 'A' Grade NAAC Accredited

BHILAI HOUSE, G.E. ROAD, DURG (CHHATTISGARH), INDIA

(SETH BALKRISHAN MEMORIAL)



No. BIT/IDEA LAB /2023/ INT / 01

Date: 15<sup>th</sup> NOV 2023

## Certificate Of Completion



This is to certify that **ASHA SONWANI**, 1<sup>st</sup> Semester M.Sc. (Physics), Govt. V.Y.T. Post Graduate Autonomous College, Durg, C.G., has successfully completed her Internship with AICTE IDEA Lab BIT, Durg from October 18<sup>th</sup>, 2023 to November 15<sup>th</sup>, 2023, held at Bhilai Institute of Technology, Durg, C.G.

Best wishes for all future endeavors.

**Dr. Arun Arora**

Chief Mentor, IDEA Lab  
BIT, Durg (C.G.)

**Dr. Pawan Kumar Patnaik**

Coordinator, IDEA Lab  
BIT, Durg (C.G.)

## ACKNOWLEDGMENT

In Present day technology can become the “wings” that will allow the educational world to fly further and faster than ever before- if we allow it. Technology has the potential to revolutionize education because they are like two coins of the same side, without which it is impossible to imagine the comprehensive development of any country.

We are incredibly grateful to the principal of **GOVT. V.Y.T.PG. Autonomous college durg**, Dr. M.A. Siddiqui sir who permitted us to attend this internship program at Bhilai institute of technology.

Also, thankful **PM-USHA** for providing fund to us, so that we can able to succeed to making the project.

Furthermore, we would like to express our gratitude to Dr. Jageet kaur Saluja Ma'am “**Head of the Physics Department**”, for providing us with this amazing chance to participate in the internship program.

We express our sincere gratitude to Dr. R.N. Singh Sir, Dr. Anita Shukla Ma'am, Dr. Siddheshwari Chandraker Ma'am, Dr. Abhishek Mishra Sir, Dr. Kusumanjali Deshmukh Ma'am, Mr. Bhupendra Das Sir and Mr. Neeraj Yadav Sir, for your invaluable guidance during our project.

24 students from M.Sc. Previous participated in a group of 4 students for this internship program. We created a total of **6 project** using our creativity and gained a lot of knowledge.

It was a very good time for us to learn something new and innovative, which will help us a lot in making more projects in the future, so that we can also contribute toward achieving the goal of **ViksitBhart@2047**.

## TABLE OF CONTENT

<b>S.N.</b>	<b>Topic</b>	<b>Page No.</b>
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5.	Demonstration of our project & Certification Day	11
6.	Highlights of our internship program	12
7.	Feedback	13

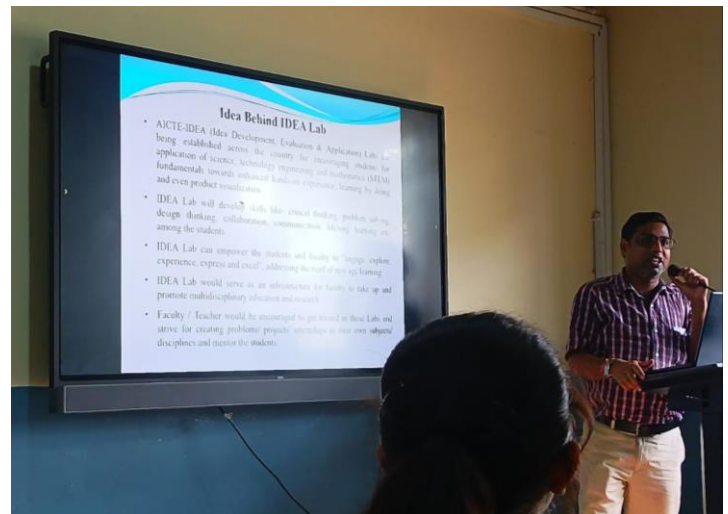
## A BRIEF OVERVIEW OF THE INTERNSHIP PROGRAM

The Bhilai Institute of Technology (BIT) Durg is well-known for its aesthetically pleasing campus, excellent instructors with a wealth of experience, and committed staff.



We all had the wonderful opportunity to participate in an internship program at **IDEA LAB**, which ran from **October 18, 2023, to November 15, 2023.**

Throughout the course of this internship program, we attended numerous technical workshops where we learned about Arduino and LDR and observed a variety of machines, including those that printed cups, t-shirts, laser cut objects, 3D prints, and many other things.



## 3D PRINTER

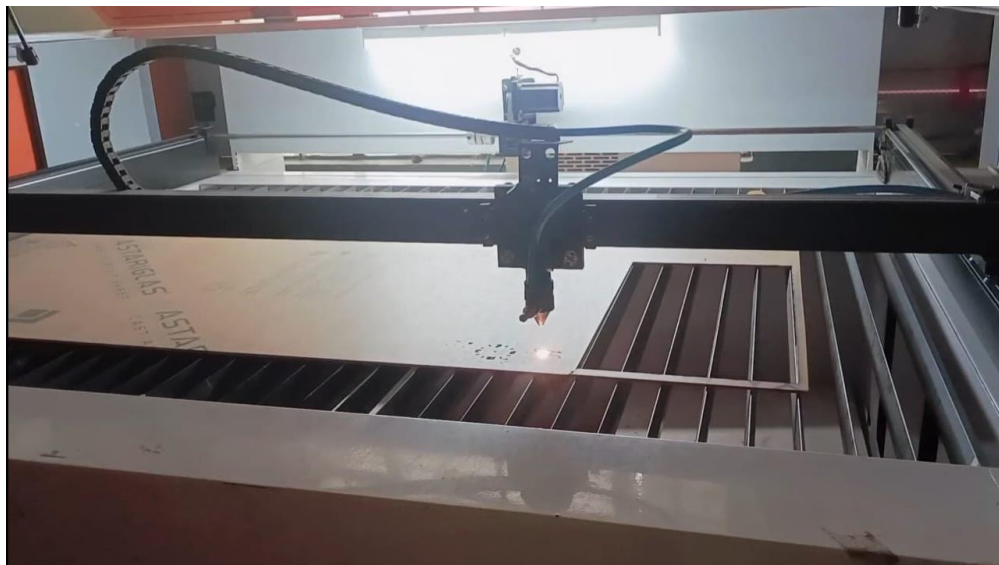
3D printing is a process in which a digital model is turned into a tangible, solid, three-dimensional object, usually by laying down many successive, thin layers of a material. 3D printing has become popular so quickly because it makes manufacturing accessible to more people than ever before.



[3D Printer](#)

## LASER CUTTING MACHINE

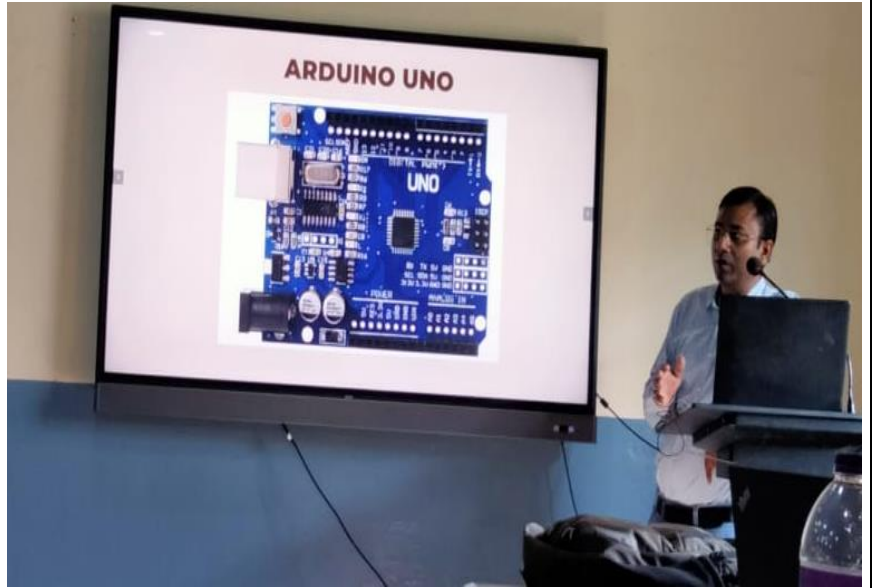
Laser cutting is mainly a thermal process in which a focused laser beam is used to melt material in a localized area. A co-axial gas jet is used to eject the molten material and create a kerf. A continuous cut is produced by moving the laser beam or workpiece under CNC control.



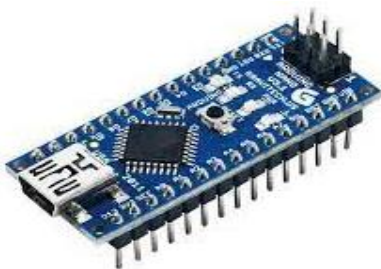
[Laser Cutting Machine](#)

## ARDUINO

The Arduino Uno comes with USB interface, 6 analog input pins, 14 I/O digital ports that are used to connect with external electronic circuits. Out of 14 I/O ports, 6 pins can be used for PWM output. It allows the designers to control and sense the external electronic devices in the real world.



Arduino is an Italian open-source hardware and software company, project, and user community that designs and manufactures single-board microcontrollers and microcontroller kits for building digital devices. Its hardware products are licensed under a CC BY-SA license, while the software is licensed under the GNU Lesser General Public License (LGPL) or the GNU General Public License (GPL), permitting the manufacture of Arduino boards and software distribution by anyone. Arduino boards are available commercially from the official website or through authorized distributors.



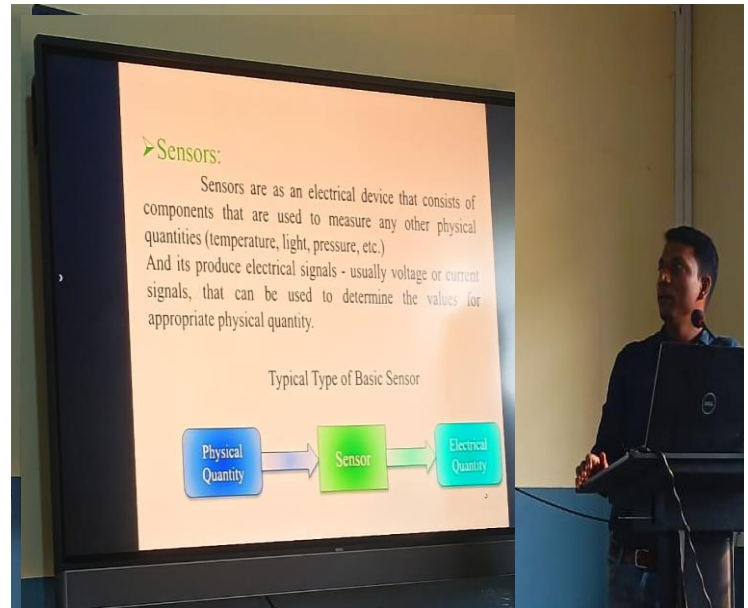
[Arduino Nano](#)



[Arduino Uno](#)

# SENSORS

A sensor is a device that detects the change in the environment and responds to some output on the other system. A sensor converts a physical phenomenon into a measurable analog voltage converted into a human -readable display or transmitted for reading or further processing.



One of the best-known sensors is the microphone, which converts sound energy to an electrical signal that can be amplified, transmitted, recorded, and reproduced. Sensors are used in our everyday lives.



Ultrasonic Sensor



Touch Sensor

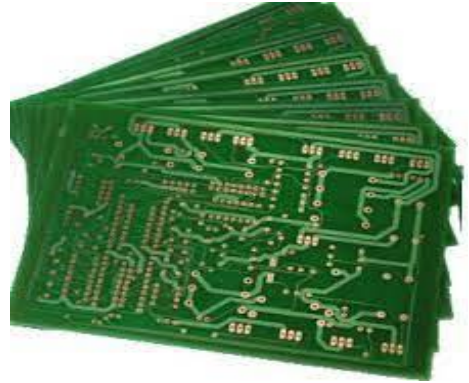


Color Sensor

## PCB (PRINTED CIRCUIT BOARD)



PCBs are made by isolating the surface copper foil conductive layer through the board base insulation material, which allows current to flow through various components along a pre-designed route.



Ultimately achieving functions such as power making, amplification, attenuation, modulation, demodulation, and coding.

PCB (Printed Circuit Board)

## BREAD BOARD

A breadboard (sometimes called a plug block) is used for building temporary circuits. It is useful to designers because it allows components to be removed and replaced easily. It is useful to the person who wants to build a circuit to demonstrate its action, then to reuse the components in another circuit.



Bread Board

## INTRODUCTION

Our Project is design strategy for an Arduino-based safety system to prevent railway accidents. When a train is 500 meters away from an object (a person or an animal), this railway accident prevention safety system commands the person or animal if it is on the track.

In this system, a high-frequency sound wave is transmitted by an ultrasonic sensor, which then waits for the sound to return before calculating the distance based on the required amount of time. In order to alert people to the impending arrival of a train, an ultrasonic sensor works by scanning for and identifying the vehicle.

It then sends a signal to a buzzer to generate an alarm on the railway track. Keywords – Arduino, Ultrasonic Sensor, Buzzer, DC Servomotor, LED Lights. To prevent accidents on the rails, at crossings, etc.

So, the project here is the detection of trains approaching the track. Arduino, an ultrasonic sensor, and a buzzer are used in this.

The train that is approaching the track is detected by this ultrasonic sensor-based technology. The proposed technology locates the train using ultrasonic sensors. A sensor placed between 500 meters or at our discretion can detect the arrival of the train.

## OUR PROJECT (AUTOMATIC ALARMING SYSTEM FOR TRAIN)

Under the direction of pro. Santosh Mishra, LAB Guru at **Idea lab, BIT Durg**, we created a working project on “**Automatic Alarming system for train**” or “**safety system for living beings**” during the internship program.

Avoiding Railroad Accidents, we are presenting A project using an Arduino ultrasonic sensor-based safety system our aim is to avoid accidents on train tracks. We are aware that the country's most popular mode of transit is rail. Accidents are happening more frequently at the railway crossing.



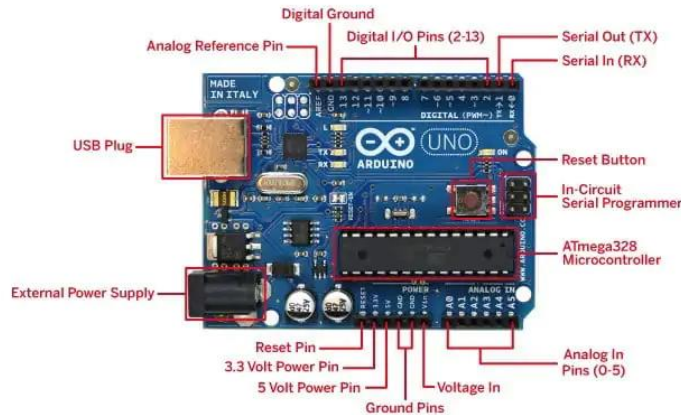
Which can be used in a simple and easy way to reduce the increase in train accidents so that precious human lives and other valuable can be saved.

**The components we use in our project – Arduino uno, ultrasonic sensor, led buzzer etc.**

## ARDUINO UNO

Arduino Uno is a microcontroller board based on the microchip Atmega328P. A Micro controller comprises of an incredible CPU.

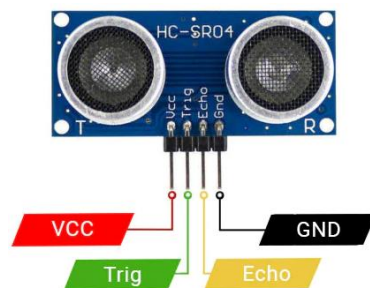
Primarily combined with memory different I/O interfaces, for example, parallel port clock, ADC and DAC coordinates and to a solitary silicon chip.



## Arduino Uno

## ULTRASONIC SENSOR

An ultrasonic Sensor transmits ultrasonic waves into the air and detects reflected waves from an object. There are many applications for ultrasonic sensor such as in instructions alarm systems, automatic door openers and backup sensors for automobile etc.



## Ultrasonic Sensor

## LED (LIGHT EMITTING DIODE)

Light Emitting Diodes (LEDs) are very useful as indicators to show when something is on, LEDs work at low voltage and take very little current which makes them ideal for low power circuits.



LED

## BUZZER

A buzzer or beeper is an audio signaling device. Generally, it is powered through DC voltage and used in timers, alarm devices, printers, alarms, computers, etc.



Buzzer

## WORKING

All the components of the system are connected with the control unit. The power supply supplies the power to the control unit. The ultrasonic sensors are used to detect the obstacles in the train path. Ultrasonic sensors work on a principle similar to sonar which evaluates distance of a target by interpreting the echoes from ultrasonic sound waves.



By employing an Arduino-based safety system to generate an alarm through a buzzer, any obstruction (people) can be alerted and made aware that a train is approaching them at a distance, preventing accidents on the railway track.



A train's location is found and tracked using an ultrasonic sensor. Alarms are generated at the track using buzzers. An ultrasonic sensor was employed as a proximity switch to warn individuals when a train was approaching from a distance of approximately 500 meters away. The ultrasonic sensor automatically blinks a red light and makes a buzzing sound when something blocks it.

## DEMONSTRATION OF OUR PROJECT

&

## CERTIFICATION DAY

Last but not least, the big day arrived. We presented our project to all of the IDEA LAB instructors, including Drs. Santosh Mishra, Anil Kumar, Pro. Kauleshwar Prasad, Anupam Agrwal, Mrs. Suchitra Panday, and Puspendra Singh.



They were really impressed with our work. They gave us motivation and support to carry on with these initiatives and model making.

## HIGHLIGHTS OF OUR INTERNSHIP PROGRAM



## MY FEEDBACK

We had the chance to work with a variety of Machines in this program, including a 3D printer and a laser cutting machine, among many others. We visit Idea Lab and get familiar with the machine and how it operates.

During this internship course, I learned incredibly cheaply how to come up with unique ideas for models. The internship programme taught me a lot, but what I like most about it was how we worked together as a team and exchanged ideas. I had a terrific experience all around. I gained a lot of knowledge over this internship programme, including coding and soldering, among many other things.



**A  
PROJECT REPORT  
ON  
INTERNSHIP PROGRAM AT IDEA LAB BIT DURG CHHATTISGARH  
SUBMITTED TO  
GOVT. V. Y. T. PG. AUTONOMOUS COLLEGE DURG**



**GUIDED BY**

**PRO. ANUPAM AGRAWAL**

**PRESENTED BY**

**ASHISH KUMAR**

**AARYAN THAKUR**

**RUPESH THAKUR**

**VAISHALI TMRAKAR**

**( M.Sc. PREVIOUS )**

**SESSION 2023 – 24**

**DEPARTMENT OF PHYSICS**

**GOVT. V. Y. T. PG. AUTONOMOUS COLLEGE DURG ( C.G. )**



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BHILAI HOUSE, G.E. ROAD, DURG (CHHATTISGARH), INDIA  
(SETH BALKRISHAN MEMORIAL)



No. BIT/IDEA LAB/2023/INT/13


Date: 15<sup>th</sup> NOV 2023


### *Certificate Of Completion*



This is to certify that **ASHISH KUMAR SAHU**, 1<sup>st</sup> Semester M.Sc. (Physics), Govt. V.Y.T. Post Graduate Autonomous College, Durg, C.G., has successfully completed his Internship with AICTE IDEA Lab BIT, Durg from October 18<sup>th</sup>, 2023 to November 15<sup>th</sup>, 2023, held at Bhilai Institute of Technology, Durg, C.G.

Best wishes for all future endeavors.

  
**Dr. Arun Arora**  
Chief Mentor, IDEA Lab  
BIT, Durg (C.G.)

  
**Dr. Pawan Kumar Patnaik**  
Coordinator, IDEA Lab  
BIT, Durg (C.G.)



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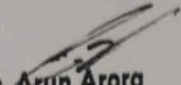
Date: 15<sup>th</sup> NOV 2023


## *Certificate Of Completion*



This is to certify that **ARYAN**, 1<sup>st</sup> Semester M.Sc. (Physics), Govt. V.Y.T. Post Graduate Autonomous College, Durg, C.G., has successfully completed his Internship with AICTE IDEA Lab BIT, Durg from October 18<sup>th</sup>, 2023 to November 15<sup>th</sup>, 2023, held at Bhilai Institute of Technology, Durg, C.G.

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Chief Mentor, IDEA Lab  
BIT, Durg (C.G.)

  
**Dr. Pawan Kumar Patnaik**  
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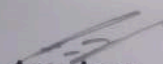
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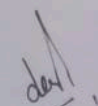


This is to certify that **RUPESH**, 1<sup>st</sup> Semester M.Sc. (Physics), Govt. V.Y.T. Post Graduate Autonomous College, Durg, C.G., has successfully completed his Internship with AICTE IDEA Lab BIT, Durg from October 18<sup>th</sup>, 2023 to November 15<sup>th</sup>, 2023, held at Bhilai Institute of Technology, Durg, C.G.

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Chief Mentor, IDEA Lab  
BIT, Durg (C.G.)

  
**Dr. Pawan Kumar Patnaik**

Coordinator, IDEA Lab  
BIT, Durg (C.G.)



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No. BIT/IDEA LAB/2023/INT/16


Date: 15<sup>th</sup> NOV 2023

### *Certificate Of Completion*



This is to certify that **VAISHALI TAMRAKAR**, 1<sup>st</sup> Semester M.Sc. (Physics), Govt. V.Y.T. Post Graduate Autonomous College, Durg, C.G., has successfully completed her Internship with AICTE IDEA Lab BIT, Durg from October 18<sup>th</sup>, 2023 to November 15<sup>th</sup>, 2023, held at Bhilai Institute of Technology, Durg, C.G.

Best wishes for all future endeavors.

  
**Dr. Arun Arora**

Chief Mentor, IDEA Lab  
BIT, Durg (C.G.)

  
**Dr. Pawan Kumar Patnaik**

Coordinator, IDEA Lab  
BIT, Durg (C.G.)

## ACKNOWLEDGEMENT

At Present scenario only theory is not important in any field but at the same time the Practical knowledge is important too . As the technology grows very rapidly but our country is still a developing country . our innovations will definitely raise a step towards our country .

We are grateful to the principal of Govt.V.Y.T.PG.Autonomous college , Dr.M.A Sidhiqui who permitted us to attend this internship program .

Also , we are very thankful to PM-USHA for providing us fund so that we could able to attend this internship programme.

Along with this we all are very grateful to the Head of the Department ( physics ) Dr. Jagjeet kaur Saluja who gave us a wonderful opportunity to take part in this internship program .

We would like to say special thanks to Dr. Ramashankar Singh

, Dr. Anita Shukla , Dr. Sitieshwari chandrakar , Dr. Abhishek Kumar Mishra , Mr. Bhupendra Das and Mr. Neeraj Yadav who guided us a lot during our project.

It was our good fortune to make a small contribution to ViksitBharat@2047 through this internship program . We all hope that from time to such internship programs will be organized for us for enhancing our knowledge .

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**-: Brief description about the Internship programme :-**

faculty rich Bhilai Institute of Technology Durg , is Renowned for its Environment friendly campus with well – equipped infrastructure , outstanding experience , and dedicated staff .

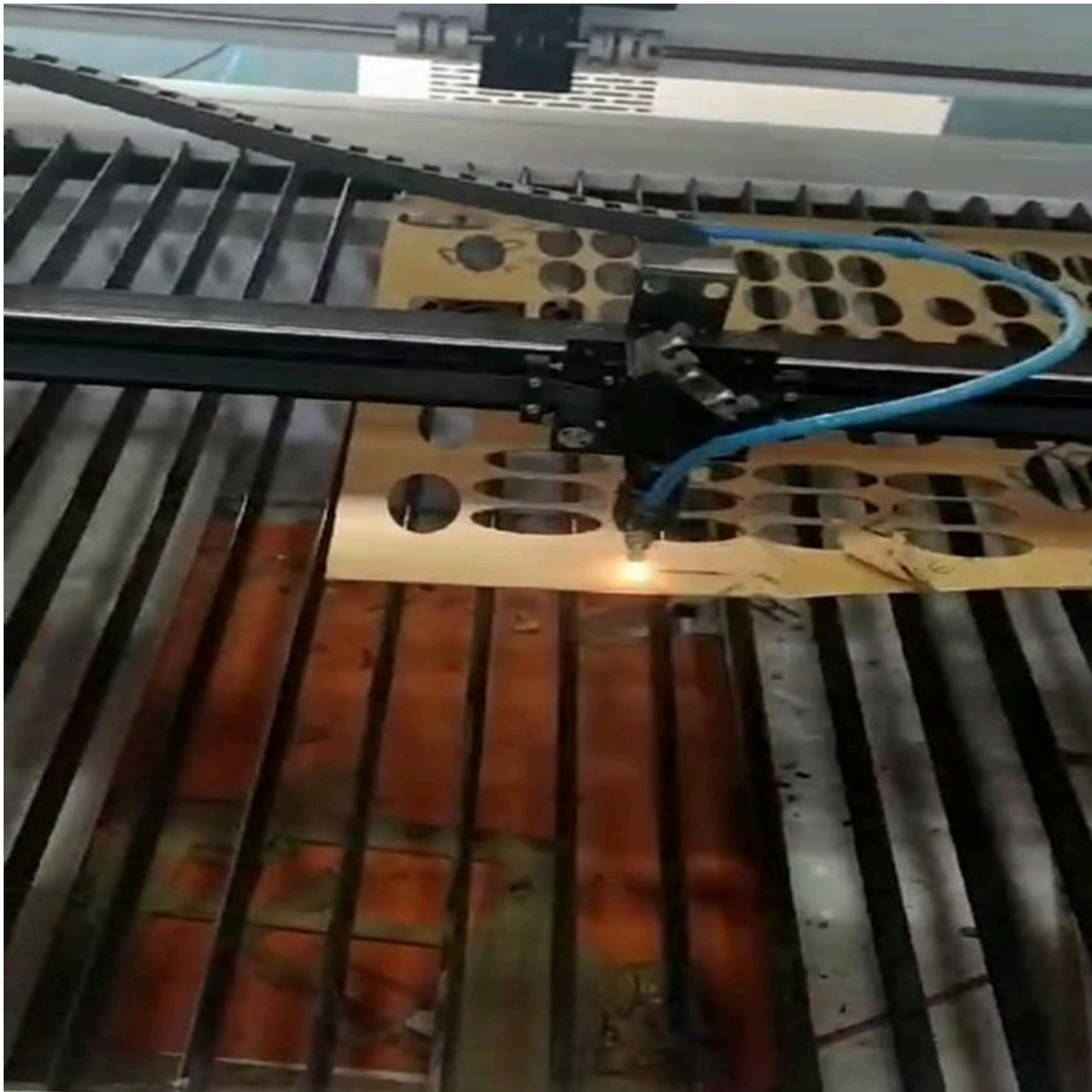
We all got a golden opportunity to attend an “ Internship program at IDEA LAB ” , BIT Durg which was from 18th October to 15th November , 2023 .

During this internship program , there were many technology sessions through which learnt about Arduino , LDR and we saw different types of Machines like cup printing , t-shirt printing , laser cutting machine , 3D-printing Machine and many more .



### -: Working of laser cutting machine :-

LASER Cutting uses a high – power laser which is directed through optics and computer numerical control ( CNC) to direct the beam or material . Typically , the process uses a motion control system to follow a CNC or G-CODE of the pattern that is to be cut onto the material .



### -: WORKING OF 3D PRINTING MACHINE :-

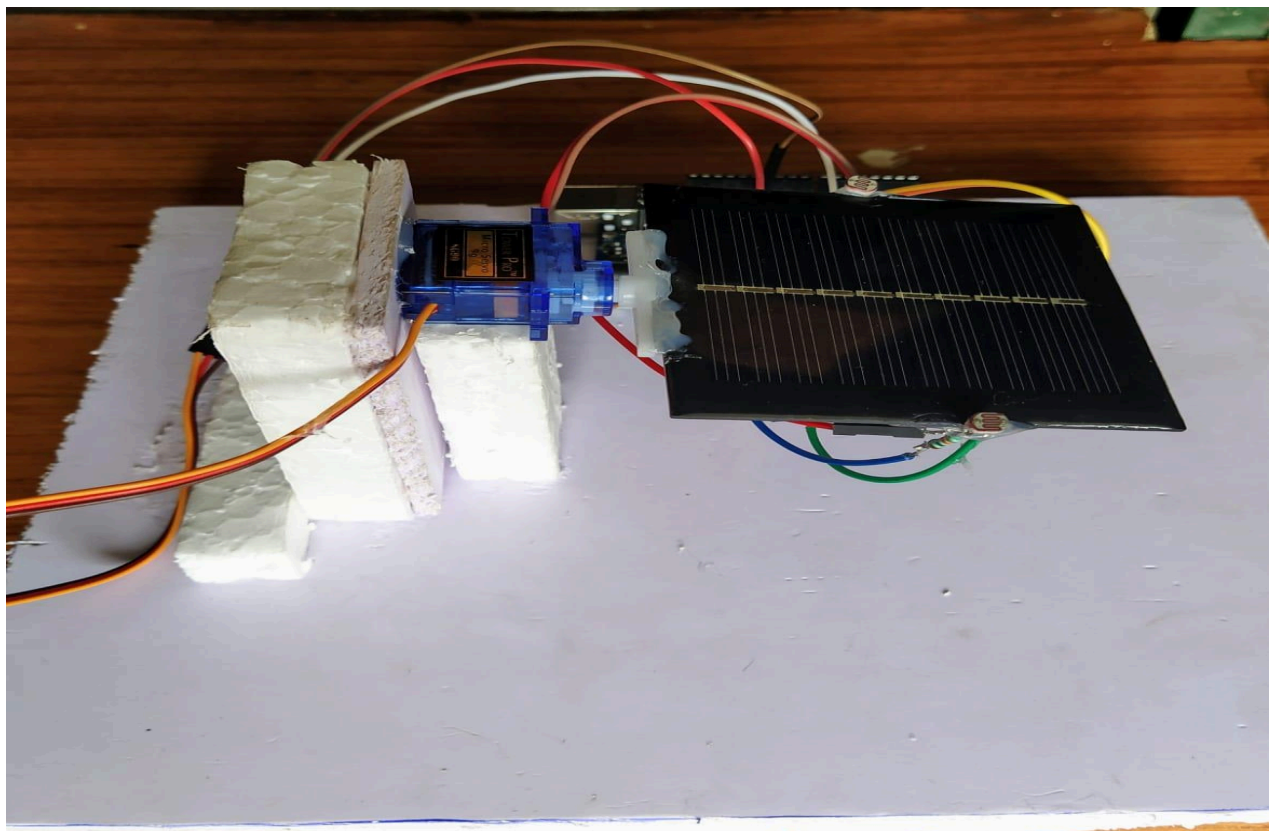
3D printers are related to additive Manufacturing . 3D printers use Computer – aided design to understand a design . When a design is ready , a Material that can be dispensed through a hot nozzle or precision tool is printed layer by layer to create a three- Dimensional Object from Scratch .



## **Our Project :- Smart solar tracking system**

During Internship program , we made a working model on “ Smart Solar Tracking System ” , under the guidance of pro. Anupam Agrawal sir , LAB Guru at Idea lab , BIT Durg . Solar energy is rapidly advancing as an important means of renewable energy resource. Solar tracking enables more solar energy to be generated because the solar panel is able to maintain a perpendicular profile to the sun's rays.

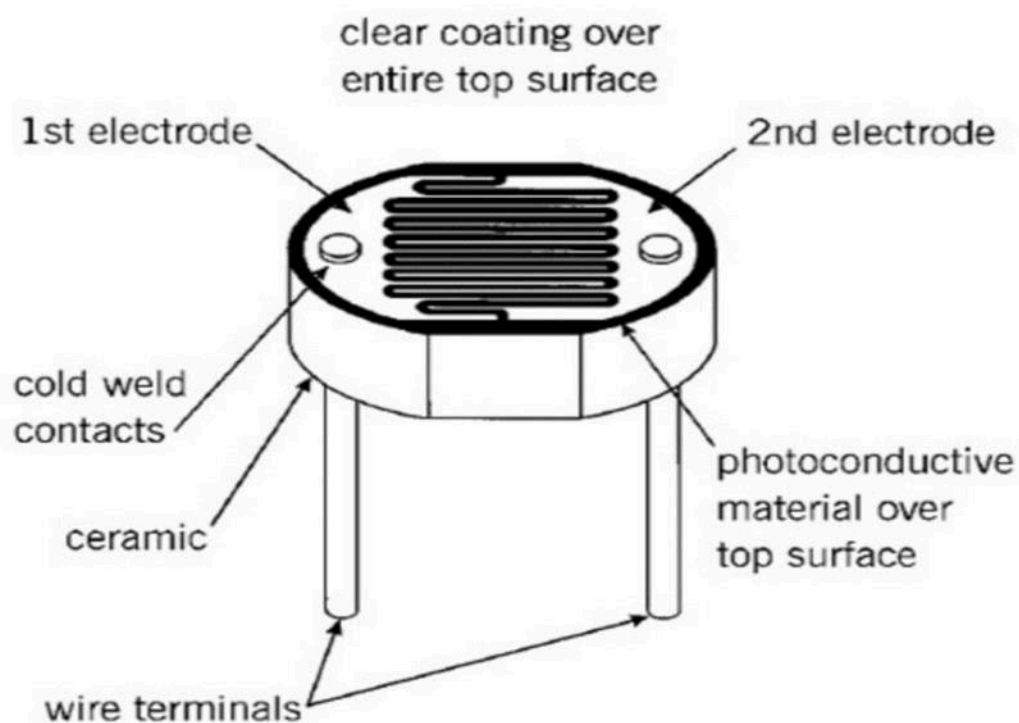
Design and construction of the proposed solar tracker prototype with single-axis rotation, which detects the sunlight intensity via the Light Dependent Resistors (LDR ) is discussed in this paper. The solar tracker circuit is based on the platform of Arduino Uno micro-controller. It is programmed such that servo motor is activated in the direction of maximum sunlight intensity detected via the LDR pair.





## **WHAT IS LDR :- ( Light Dependent Resistor )**

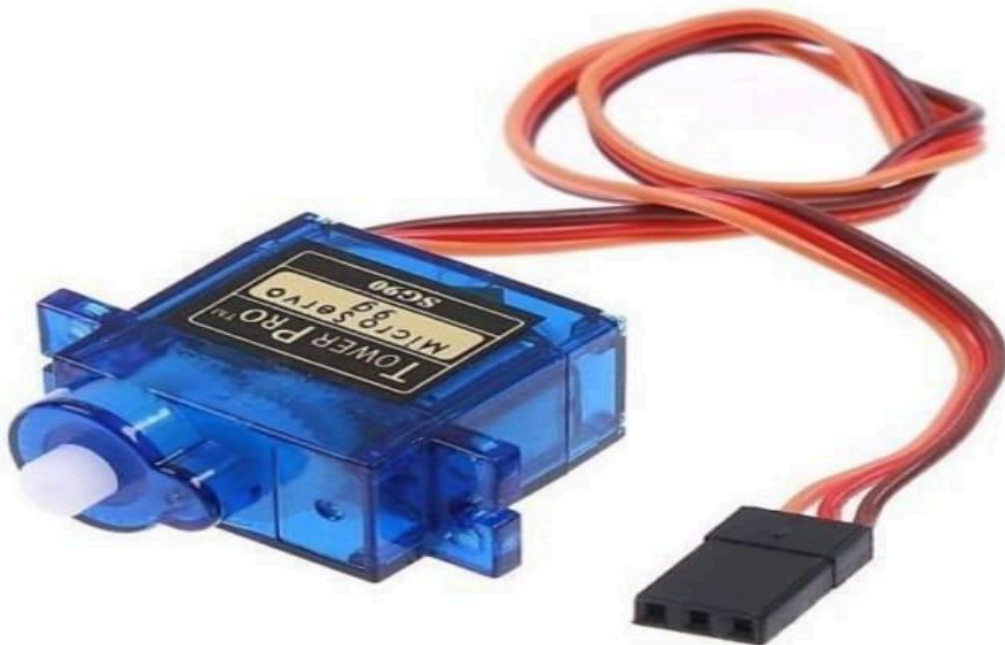
As the name states is a special type of resistor that work on the photoconductivity principle. In the system LDR is act as sensor to senthe headlight beam of oncoming vehicles .



### -: What is servo motor :-

A servomotor is a rotary actuator that allows for precise control of angular position, velocity and acceleration. The servo motor consists of a suitable motor coupled to a sensor for position feedback that is it contains a feedback loop which makes it more precise compared to a stepper motor.

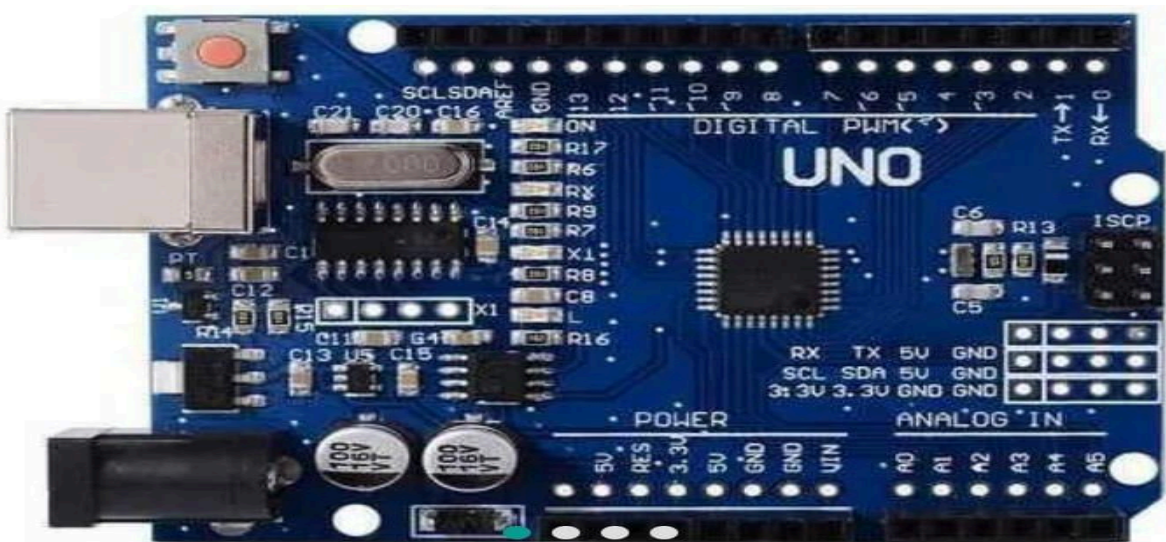
In order for the solar panel to rotate horizontally in accordance with the intensity of sunlight, servo motor is incorporated which actuates the rotation of the panel between 0 degrees and 180 degrees.



## **-: What is Arduino Uno:-**

The Arduino Uno is a microcontroller board based on the ATmega328. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz ceramic resonator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.

Initially a tolerance level (Assumed as integer value 2 ) is defined in the program. The analog inputs from the LDR pair to the Arduino Uno board is converted to digital values by the ATmega328 which are later processed as per the program instruction.



## -: Procedure of Our Project :-

Following are the different cases explaining the tracking of solar panel between East and West:

Case1: When the East light intensity is greater than the West light intensity.

In this case, the solar panel is rotated towards East Direction.

Case2: When the East light intensity is lesser than the West light intensity.

In this case, the solar panel is rotated towards West direction.

Case3: When the East light intensity is nearly same as the West light intensity.

In this case, the solar panel is in the stationary position and does not move at that given instant.

Special Case: During Solar Eclipse, though the sky light becomes dark, its intensity is greater than 20 candela which is greater than the LDR sensor pair being used. Hence, it tracks the sun light as usual after the completion of the Eclipse.

The micro-controller is programmed such that, at the end of the day after Sunset (West), the solar panel is again made to face the Sunrise (East) position for tracking purpose for the next day.

### -: Advantages of the Project :-

- The solar energy can be reused it is non renewable resource.
- This is also save money as there is no need to pay for energy used.
- Helps in maximizing the solar energy absorption by continuously tracking the sun.
- It is a eco - friendly.

## : Demonstration of our project and certification day:

Finally the day of arrived. we demonstrated our project in front of all teachers of ideal lab namely Dr .Santosh Mishra sir, Dr.Anil kumar sir, Pro. Kauleshwar parasad sir, Dr.Anupam agrawal sir, Mrs. Suchitra pandey mam and Pr.Pushpendra singh sir, they admired our effort a lot they encouraged us and inspired us to continue working on such project and making model.





# **FEEDBACK**

ASHISH :- I learned many inventive ideas about research project . It help invent something new project in future.

RUPESH:- During the period of 3d printing internship we learn lots of things we under stand about different electronic board & also know about pcb board.

Aaryan:- As a student this is very memorable moment for me that I worked on some interesting projects in idea lab of Bhilai . I learned lots of thing during our internship . I would like to thanks all my college faculties for giving me this great opportunity .

Vaishali :- I got to learn a lot in this internship that was a very good experience . I would like to thanks Dr Jagjeet kaur mam for this internship



A  
PROJECT REPORT  
ON  
INTERNSHIP PROGRAM AT IDEA LAB BIT DURG  
CHHATTISGARH  
SUBMITTED TO  
GOVT. V. Y. T. PG. AUTONOMOUS COLLEGE DURG



**Guided By:-**

**Suchitra Pandey Mam**

**Represented By:-**

**Chanchal,**

**( MSc. Previous)**

**SESSION 2023 – 24**

**DEPARTMENT OF PHYSICS**

**GOVT. V. Y. T. PG. AUTONOMOUS COLLEGE DURG ( C.G. )**



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(SETH BALKRISHAN MEMORIAL)



No. BIT/IDEA LAB/2023/INT/20


Date: 15<sup>th</sup> NOV 2023

## Certificate Of Completion



This is to certify that **CHANCHAL**, 1<sup>st</sup> Semester M.Sc. (Physics), Govt. V.Y.T. Post Graduate Autonomous College, Durg, C.G., has successfully completed her Internship with AICTE IDEA Lab BIT, Durg from October 18<sup>th</sup>, 2023 to November 15<sup>th</sup>, 2023, held at Bhilai Institute of Technology, Durg, C.G.

Best wishes for all future endeavors.

  
**Dr. Arun Arora**

Chief Mentor, IDEA Lab

BIT, Durg (C.G.)

  
**Dr. Pawan Kumar Patnaik**

Coordinator, IDEA Lab

BIT, Durg (C.G.)

# **ACKNOWLEDGEMENT**

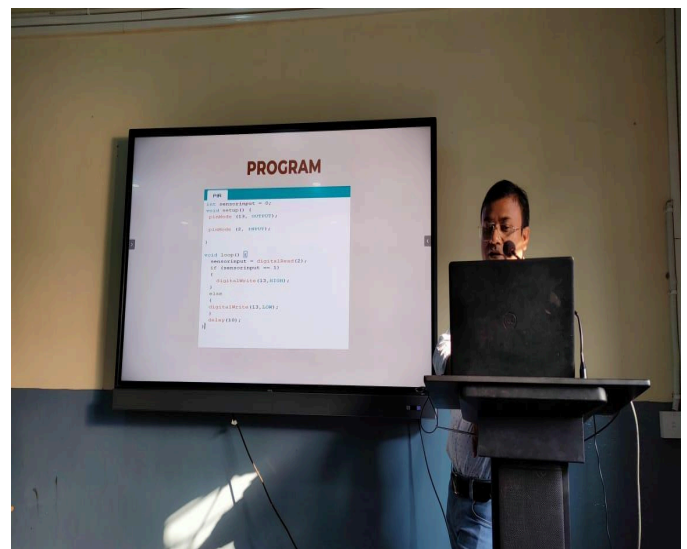
We are grateful to the principal of Govt. V .Y. T. P.G. Autonomous College Durg, Dr. M.A Sidhiqui Sir who permitted us to attend this internship programme. Along with this we all are very grateful to the Head of the Department (physics) Dr. Jagjeet kaur saluja Mam who gave us a wonderful opportunity to take part in this internship programme. We would like to say special thanks to DR. Sitieshwari chandrakar mam, MR. Bhupendra das sir and MR. Neeraj Yadav sir who guided us a lot during our project. In this internship programme, 24 student from Msc Previous took part. In the group of 4 students we made total 6 project with our innovations and learnt a lot. We all hope that from time to such internship programs will be organized for us for enhancing our knowledge.

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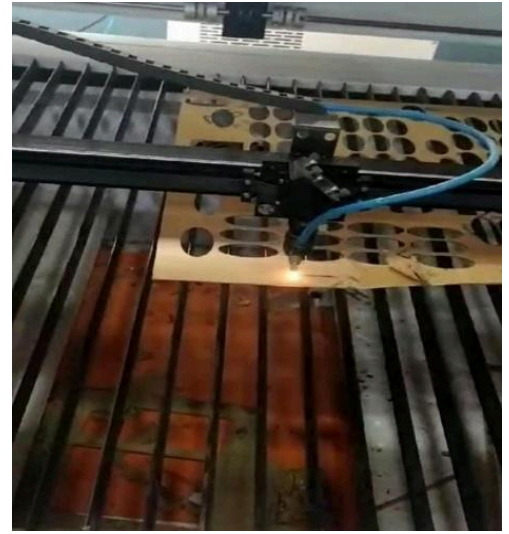
# **Brief Description About The Internship Programme**

Bhilai institute of technology Durg, is renowned for its environment friendly campus with well-equipped infrastructure, outstanding faculty rich experience, and dedicated staff. We all got a golden opportunity to attend an "Internship programme AT IDEA LAB", BIT Durg which was from 18th October to 15th November 2023. During this internship programme, there were many technology sessions through which learnt about Arduino, LDR and we saw different types of Machines like cup printing, t-shirt printing, laser cutting machine, 3D-printing Machine and many more.



# Working Of Laser Cutting Machine

LASER Cutting uses a high power laser which is directed through optics and computer numerical control (CNC) to direct the beam or material. Typically, the process uses a motion control system to follow a CNC or G-CODE of the pattern that is to be cut onto the material.



**Laser Cutting Machine**

# Working Of 3D Printing Machine

3D printers are related to additive Manufacturing. 3D printers use Computer-aided design to understand a design. When a design is ready, a Material that can be dispensed through a hot nozzle or precision tool is printed Layer by layer to create a three-Dimensional Object from scratch.



**3D Printing Machine**

# **Our Project:-Home Security System**

During internship programme, we made a working model on "Home Security System" Under the guidance of Suchitra Pandey Mam, LAB GURU at IDEA LAB, BIT Durg.

When there is no one living in the house, it is seen that the lights of the house remain off even at night, due to which thieves think that if there is no one in the house, then there can be theft here.

When we are out of the house and there is this automatic system in our house, the lights of the house will turn on as soon as it gets dark and will turn off in the morning.

Due to which the thieves will feel that there is someone in this house, only then the light is going on and off, so that they will not try to steal in our house.

Due to which our home will be safe.

# **Important component of this system**

## **1. Arduino UNO:-**

arduino UNO is a micro controller board based on the ATmega 328p it has 14 digital input/output pins. It contains every things needed to support the micro controller simply connect it to a computer with a USB cable or power it with a AC to DC adapter or battery to get started.

## **2. LED:-**

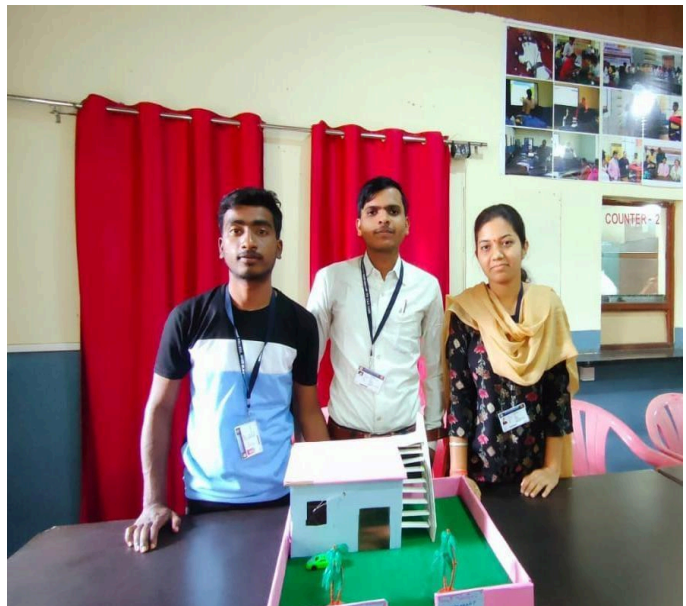
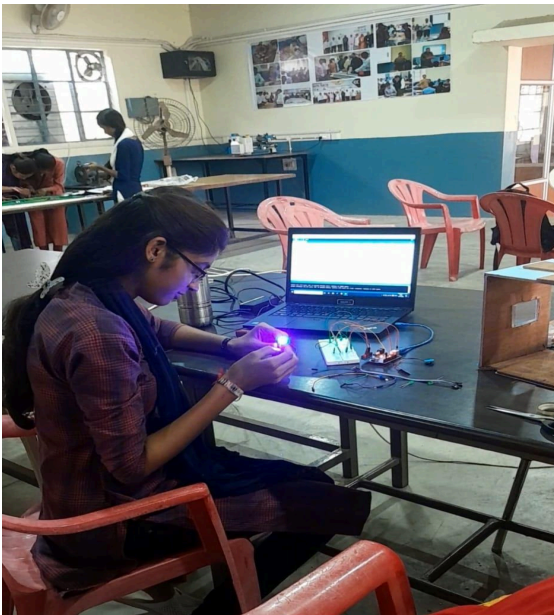
- ☐ Long lifespan
- ☐ Energy efficiency
- ☐ Improved environment performance
- ☐ Low voltage operation

## **3. LDR :-**

Photoconductivity principle: when light falls on the surface of the light sensor it absorbs photons. this absorption leads to an increase in the energy levels of the electrons in the sensor material Change in Resistance in an LDR this increase in energy allows more electrons to move freely deducing more electrons to move freely reducing the material resistance to the flow of electric current. Essentially the brighter the light the lower the resistance

# **Working Process of Our Model**

All the components of the system are connected with the control unit. The power supply supplies the power to the control unit. LDR (light dependent resistor) as the name states is a special type of resistor that works on the photoconductivity principle means that resistance changes according to the intensity of light. Its resistance decreases with an increase in the intensity of light. When Light falls on the LDR sensor, the LED light turns on and off according to the program we set in the arduino. In our program, when the intensity of light is high then the LED light remains in off condition and when the intensity of light is reduced then the LED light automatically turns on.



## **Demonstration of our Project and Certification Day**

Finally the day of arrived .we demonstrated our project in front of all teachers of IDEA LAB namely Dr. Santosh Mishra sir, Dr. Anil kumar sir, Pro. Kauleshwar prasad sir, Dr. Anupam Agrwal sir, Mrs. Suchitra pandey mam and Dr. Puspendra singh sir they admired our efforts a lot. They encouraged us and inspired us to continue working on such projects and making models.



## **Some Highlight of our Internship Program**



# Feedback

- ☐ Our experience in Idea Lab was very good.
- ☐ In Idea Lab we were told many new machines and their information and explained them well.
- ☐ By attending the class in Idea Lab and understanding it, we made our model and took all the new experiences.
- ☐ We all thank the physics department for giving us such a good opportunity.



**A  
PROJECT REPORT  
ON**

**INTERNSHIP PROGRAM AT IDEA LAB BIT DURG CHHATTISGARH  
SUBMITTED TO  
GOVT. V. Y. T. PG. AUTONOMOUS COLLEGE DURG**



**GUIDED BY :-**  
Dr. Anil Kumar

**SUBMITTED BY :-**  
Chandrashekhar Verma  
M.Sc. Previous (Physics)

**SESSION 2023 -24  
DEPARTMENT OF PHYSICS  
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(SETH BALKRISHAN MEMORIAL)



No. BIT/IDEA LAB/2023/INT/05

Date: 15<sup>th</sup> NOV 2023

## Certificate Of Completion



This is to certify that **CHANDRASHEKHAR**, 1<sup>st</sup> Semester M.Sc. (Physics), Govt. V.Y.T. Post Graduate Autonomous College, Durg, C.G., has successfully completed his Internship with AICTE IDEA Lab BIT, Durg from October 18<sup>th</sup> 2023 to November 15<sup>th</sup> 2023, held at Bhilai Institute of Technology, Durg, C.G.

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Chief Mentor, IDEA Lab  
BIT, Durg (C.G.)

  
**Dr. Pawan Kumar Patnaik**  
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Battery	08
LED (Light Emitting Diode)	09
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## **BRIEF DESCRIPTION ABOUT THE INTERNSHIP PROGRAM**

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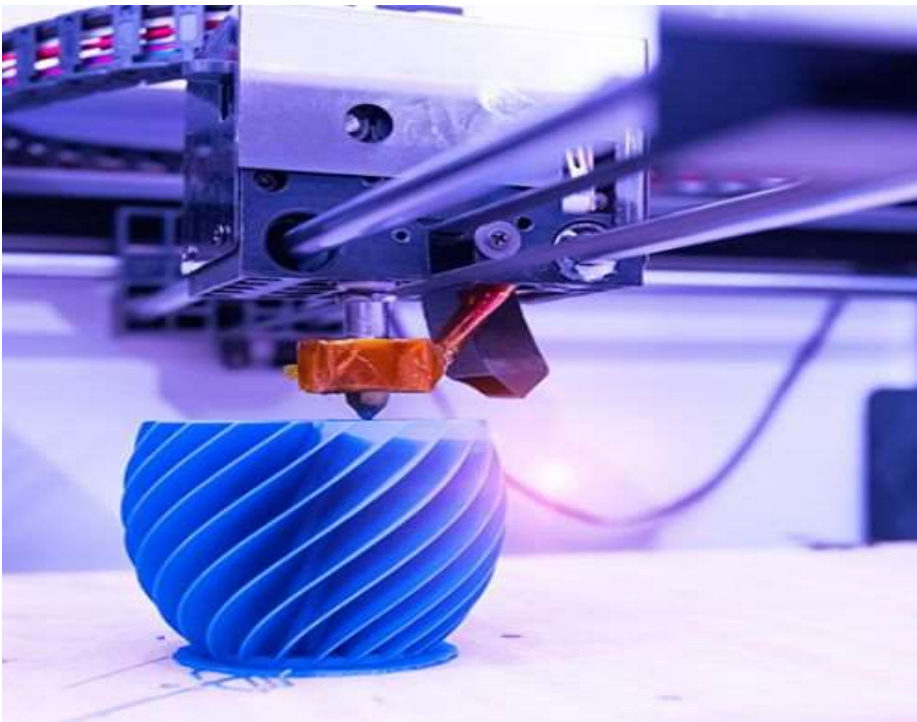
## WORKING OF LASER CUTTING MACHINE

A laser cutter works by using a **high-powered laser beam** to cut or engrave materials with high precision. The process is controlled by computer software, and the laser beam is focused and directed onto the material, which causes it to heat up and vaporize or melt, creating precise cuts or etchings.



## **WORKING OF 3D PRINTING MACHINE**

1. Produce a 3D model using CAD software.
2. Convert the CAD drawing to the standard tessellation language (STL) format.
3. Transfer the STL file to the computer that controls the 3D printer.
4. Set up the 3D printer and load the material (usually plastic) that will be extruded through a tiny nozzle.
5. Start the machine and wait for it to print the model layer by layer.



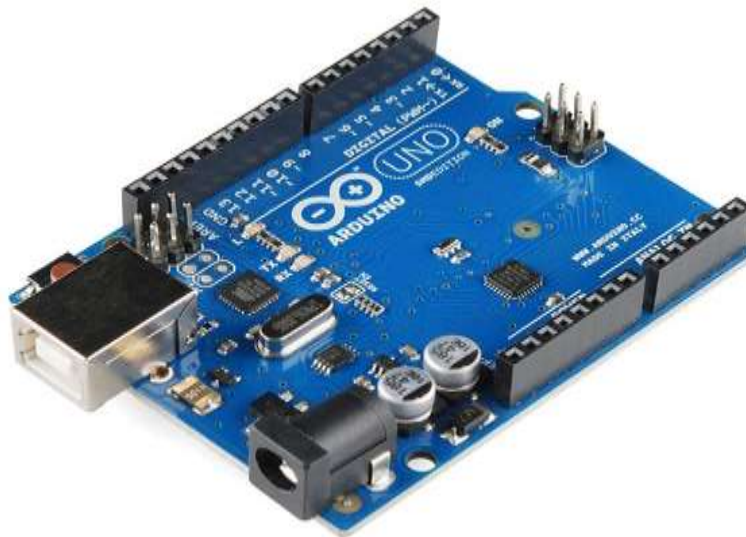
## **OUR PROJECT :- SMART GLASS FOR BLIND**

- During the Internship program, we made a working model on “Automatic Upper-Dipper system for the vehicles”, under the guidance of Pro. Kauleshwarprasad sir, LAB Guru at Idea lab, BIT Durg. Blind people have to face many challenges in their life, one of them is finding their way on the street. On the street, there are so many vehicles and obstacles that may block their way and also may injure them.
- So, keeping this problem in mind we developed a smart glass that scans for the obstacles in front of it with the help of an ultrasonic sensor.



## WHAT IS ARDUINO

Arduino is an open-source electronics platform based on easy-to-use hardware and software. [Arduino boards](#) are able to read inputs - light on a sensor, a finger on a button, or a Twitter message - and turn it into an output - activating a motor, turning on an LED, publishing something online. You can tell your board what to do by sending a set of instructions to the microcontroller on the board.



## **WHAT IS ULTRASONIC SENSOR**

An ultrasonic sensor is an electronic device that can measure the distance of a target object by sending out ultrasonic sound waves and converting the reflected sound into an electrical signal. Basically, such a sensor uses a transducer to send and get ultrasonic pulses that in turn send back information about an object's proximity. It is important to note that these ultrasonic waves travel faster than audible sound, i.e. these sensors send out sound waves at frequencies above the range of human hearing.



## WHAT IS BUZZER

A buzzer or beeper is an audio signalling device, which may be mechanical, electromechanical, or piezoelectric. Typical uses of buzzers and beepers include alarm devices, timers, train and confirmation.



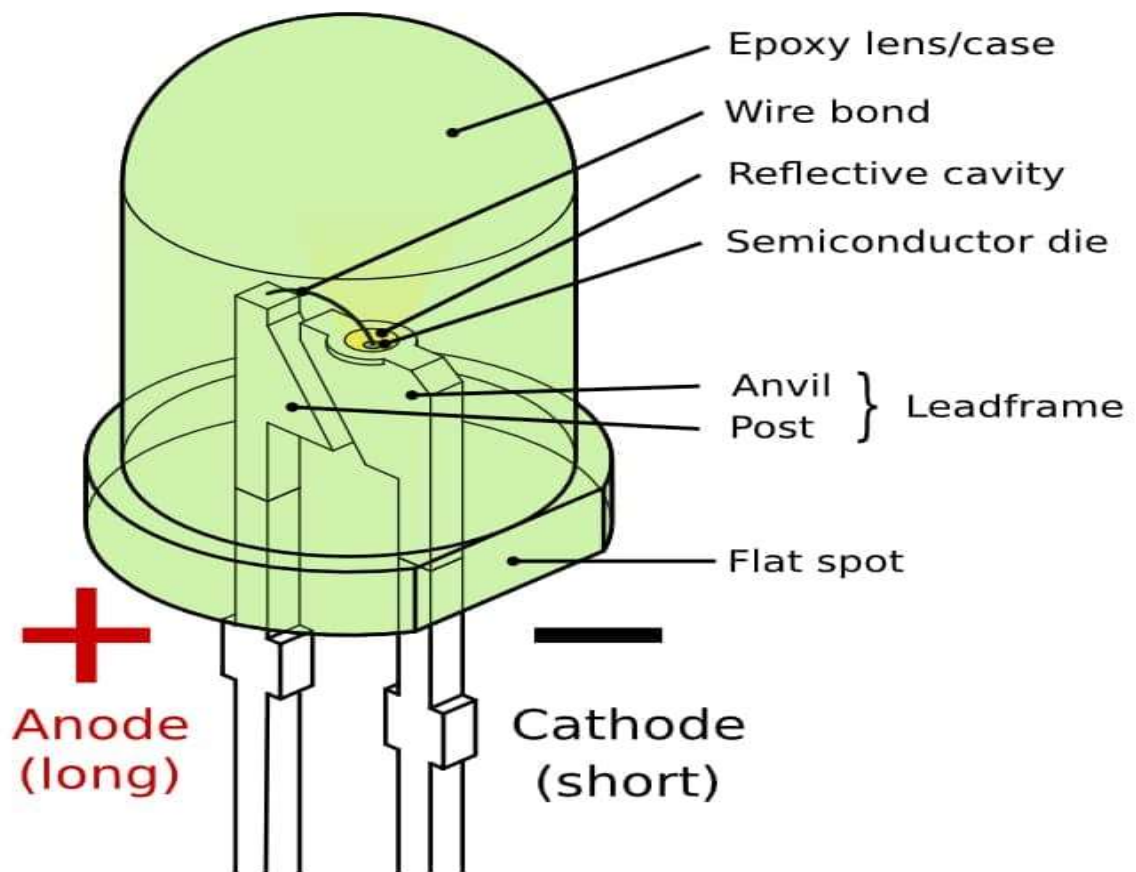
## WHAT IS BATTERY

A **battery** is an electrochemical device consisting of one or more electrochemical cells. These cells can be charged with an electric current and discharged whenever needed.



## WHAT IS LED

A light-emitting diode (LED) is a semiconductor device that emits light when current flows through it. Electrons in the semiconductor recombine with electron holes, releasing energy in the form of photons. The color of the light (corresponding to the energy of the photons) is determined by the energy required for electrons to cross the band gap of the semiconductor.



## **AIM OF THE PROJECT**

The aim of the Smart Glasses for Blind People project is to assist visually impaired individuals by providing them with a wearable technology solution. These smart glasses are designed to enhance their daily lives and improve their independence.

The main goal of “Smart Glasses” is to help blind people and people who have vision difficulties by introducing a new technology that makes them able to read the typed text. These glasses are provided with technology to scan any written text and convert it into audio text.

## DEMONSTRATION OUR PROJECT AND CERTIFICATION DAY

Finally, the day arrived. We demonstrated our project Infront of all teachers of IDEAL LAB namely Dr. Santosh Mishra sir, Dr. Anil Kumar sir, Pro. Kauleshwar Prasad sir, Dr. Anupam Agrawal sir, Mrs. Suchita Pandey mam and Dr. Pushpendra Singh sir, they admired our effort a lot. They encouraged us and inspired us to continue working on such project and Making models.





## **FEEDBACK**

During this **INTERNSHIP**, I learn about sensors, Arduino ESP etc. and how to use above components in making a digital project. I found this internship to be very **INFORMATIVE**, **ENGAGING**, and **ENJOYABLE**. I would like to be great thankful to principal sir and our HOD ma'am (Department of Physics) for this **WONDERFUL OPPORTUNITY**.



A  
PROJECT REPORT  
ON  
INTERNSHIP PROGRAM AT IDEA LAB BIT DURG CHHATTISGARH  
SUBMITTED TO  
GOVT. V. Y. T. PG. AUTONOMOUS COLLEGE DURG



**GUIDED BY**  
PROF. PUSHPENDRA SINGH

**SUBMITTED BY**  
INDRAMOHAN  
(M.Sc. PREVIOUS)

SESSION 2023 – 24  
DEPARTMENT OF PHYSICS  
GOVT. V. Y. T. PG. AUTONOMOUS COLLEGE DURG



## BHILAI INSTITUTE OF TECHNOLOGY, DURG

An Autonomous Institution | All UG Programs NBA Accredited | 'A' Grade NAAC Accredited  
BHILAI HOUSE, G.E. ROAD, DURG (CHHATTISGARH), INDIA  
(SETH BALKRISHAN MEMORIAL)



No. BIT/IDEA LAB/2023/INT/23

Date: 15<sup>th</sup> NOV 2023


### *Certificate Of Completion*



This is to certify that **INDRA MOHAN**, 1<sup>st</sup> Semester M.Sc. (Physics), Govt. V.Y.T. Post Graduate Autonomous College, Durg, C.G., has successfully completed his Internship with AICTE IDEA Lab BIT, Durg from October 18<sup>th</sup>, 2023 to November 15<sup>th</sup>, 2023, held at Bhilai Institute of Technology, Durg, C.G.

Best wishes for all future endeavors.

  
**Dr. Arun Arora**  
Chief Mentor, IDEA Lab  
BIT, Durg (C.G.)

  
**Dr. Pawan Kumar Patnaik**  
Coordinator, IDEA Lab  
BIT, Durg (C.G.)

## **ACKNOWLEDGMENT**

Although science literally means “knowledge”, the scientific attitude is concerned much more with rational perception through the mind and with testing such perceptions against actual fact, in the form of experiments and observations.

We are grateful to the principal of Govt. V.Y.T. PG Autonomous college , Dr. M.A Siddiqui who permitted us to attend this internship programme .

Also , we are very thankful to PM-USHA for providing us fund so that we could able to attend this internship programme. Along with this we all are very grateful to the Head Department of physics Dr. Jagjeet kaur Saluja who gave us a wonderful opportunity to take part in this internship programme .

We would like to say special thanks to Dr. Ramashankar Singh, Dr. Anita Shukla , Dr. Siteshwari Chandrakar , Dr. Abhishek Kumar Mishra , Dr. Kusumanjali Deshmukh, Mr. Bhupendra Das and Mr. Neeraj Yadav who guided us a lot during our project.

Practical work can motivate pupils, by stimulated interest and enjoyment, teach laboratory skills and inhance the learning of scientific knowledge.

It was our good fortune to make a small contribution toViksitBharat@2047 through this internship program. We allhope that from time to such internship programs will beorganized for us for enhancing our knowledge.

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## **BRIEF DESCRIPTION ABOUT THE INTERNSHIP PROGRAM**

Bhilai Institute of Technology Durg, is Renowned for its Environment friendly campus with well – equipped infrastructure, outstanding faculty rich experience, and dedicated staff.

We all got a golden opportunity to attend an “Internship program AT IDEA LAB”, BIT Durg which was from 18th October to 15th November, 2023. During this internship program, there were many technology sessions through which learnt about Arduino, LDR and we saw different types of Machines like cup printing, t-shirt printing, laser cutting machine, 3D-printing Machine and many more.



## About the IDEA LAB

The purpose of IDEA LAB is provide all facilities under one roof, for conversion of an idea into prototype with these facilities in the campus more students and faculties will be encouraged to take up creative work and in the process, get training on creative thinking problem solving collaboration etc. The whole idea is transform engineering education with such a lab in all college and for this they must be proactively exposed all students to the IDEA Lab organized training sessions for interested students as well supported project and by providing online learning materials. Teacher must be also get trained in this labs to know their scope and opportunities in teaching learning process as well research and development project.



## **Working of laser cutting machine**

LASER Cutting uses a high – power laser which is directed through optics and computer numerical control (CNC) to direct the beam or material. Typically, the process uses a motion control system to follow a CNC or G-CODE of the pattern that is to be cut onto the material.



## **WORKING OF 3D PRINTING MACHINE**

3D printers are related to additive Manufacturing. 3D printers use Computer – aided design to understand a design. When a design is ready, a Material that can be dispensed through a hot nozzle or precision tool is printed layer by layer to create a three- Dimensional Object from Scratch.



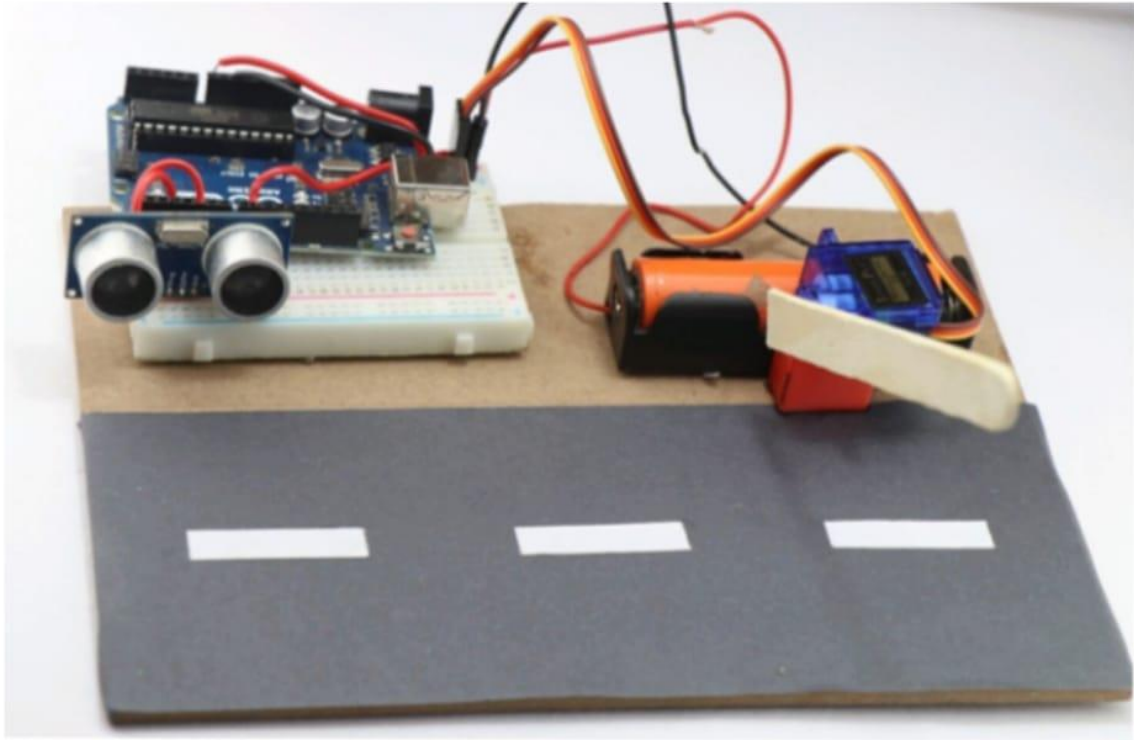
# **DTF PRINTING MACHINE**

Direct to film or DTF is process that transfer print onto fabric or other substrates using a heat- press mechanism. Unlike the DTG method, which only work on cotton fabric, the printer DTF method can work on cotton and Poly blends. The heating plate is using special protect l coating, your vinyl, clothes and iron will working that harmless to them the cover his resistance easy to clean and can make printing more steady.



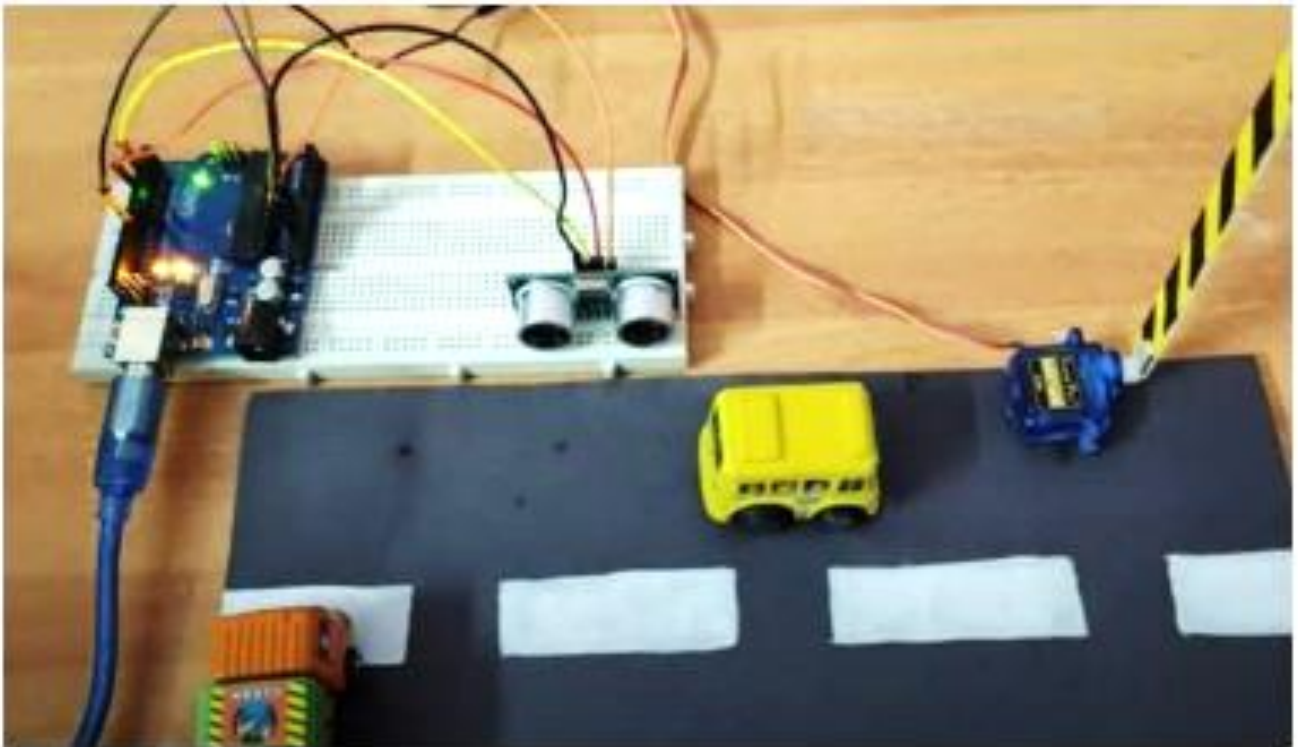
# Our project

## Automatic Toll Collection Gate System



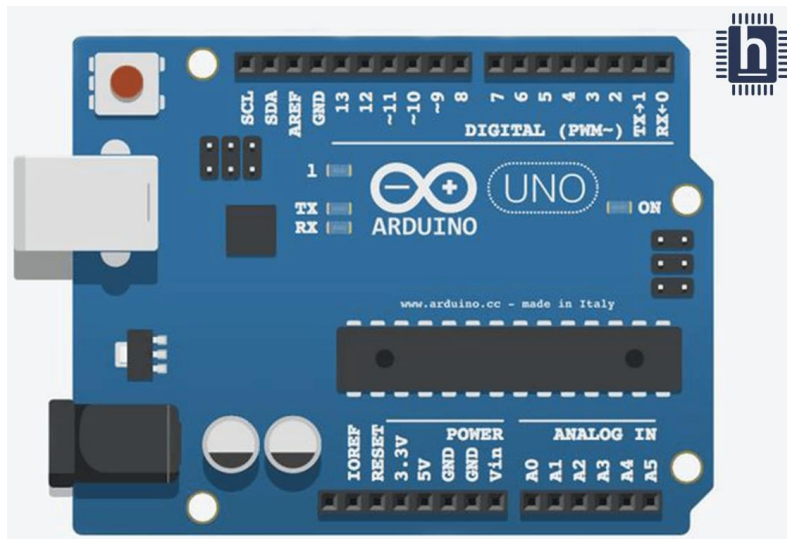
# WHAT IS THE ATCGS?

The Automatic Toll Collection Gate (ATCG) System is a new toll system designed to enhance convenience for drivers cashless toll collection and thus Reducing congestion at High-way tollgates.

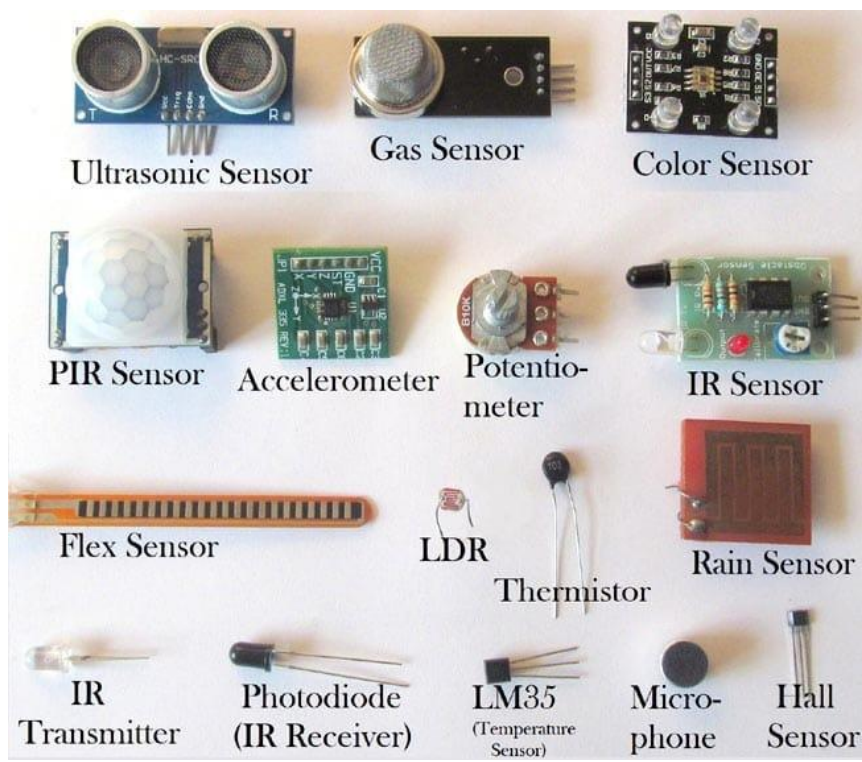


# Arduino Uno:-

Arduino Uno is a microcontroller board based on the ATmega328P. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz ceramic resonator, a USB connection, a power jack, an ICSP header and a reset button.



## Various types of sensor:-

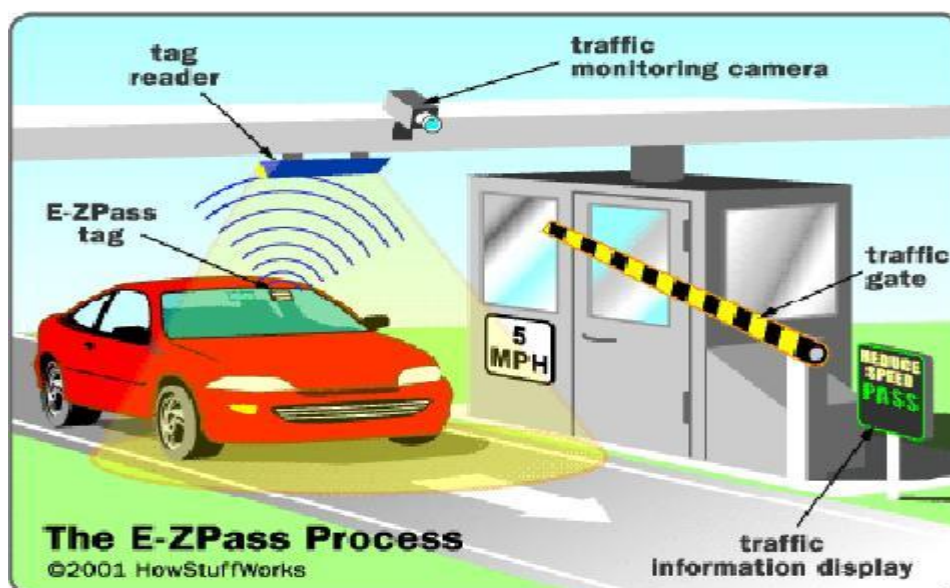


## Working process

The idea for this project was inspired from actual system, in actual toll they stop the vehicles using a stopper that is completely automated and it is activated when any vehicle passes in front the sensor, or some time it's activated through a button.



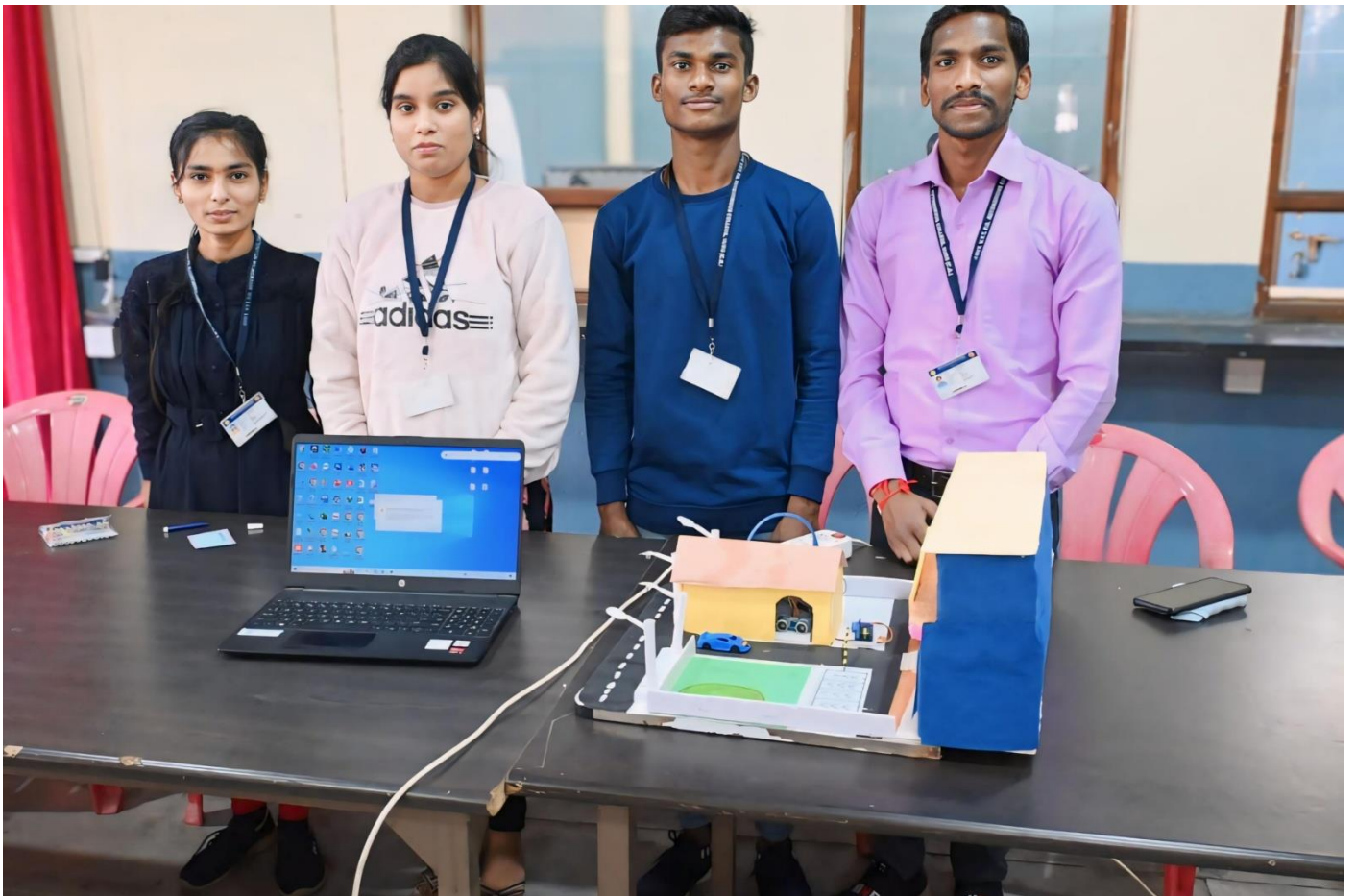
In our case, we are using an HC- SR04 or called as ultrasonic distance sensor to detect an obstacle(vehicle) and later to lift the barrier we are using micro servo, that is the mechanism involved in this project, Now let us dive into the building stage.



# CERTIFICATE DISTRIBUTION DAY



# **PROJECT DEMONSTRATION DAY**



## **Feedback:-**

**This program was very useful for us to learn, Often we see many big equipment around us, through this program we go know and understand some The small equipment inside them for which we will be thankful to the principle and head of department of our college.**







**A**  
**PROJECT REPORT**  
**ON**  
**INTERNSHIP PROGRAM AT IDEA LAB BIT DURG CHHATTISGARH**  
**SUBMITTED TO**  
**GOVT. V. Y. T. PG. AUTONOMOUS COLLEGE, DURG**



**GUIDED BY:**

PROF. KAULESHWAR PRASAD

**SUBMITTED BY:**

LAXMINARAYAN  
(M.Sc. Previous)

**SESSION 2023 – 24**

**DEPARTMENT OF PHYSICS**

**GOVT. V. Y. T. PG. AUTONOMOUS COLLEGE, DURG (C.G.)**



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(SETH BALKRISHAN MEMORIAL)



No. BIT/IDEA LAB/2023/INT/09

Date: 15<sup>th</sup> NOV 2023

### *Certificate Of Completion*




This is to certify that **LAXMI NARAYAN**, 1<sup>st</sup> Semester M.Sc. (Physics), Govt. V.Y.T. Post Graduate Autonomous College, Durg, C.G., has successfully completed his Internship with AICTE IDEA Lab BIT, Durg from October 18<sup>th</sup>, 2023 to November 15<sup>th</sup>, 2023, held at Bhilai Institute of Technology, Durg, C.G.

Best wishes for all future endeavors.

  
**Dr. Arun Arora**

Chief Mentor, IDEA Lab  
BIT, Durg (C.G.)

  
**Dr. Pawan Kumar Patnaik**

Coordinator, IDEA Lab  
BIT, Durg (C.G.)

## **ACKNOWLEDGEMENT**

At Present scenario only theory is not important in any field but at the same time the Practical knowledge is important too. As the technology grows very rapidly but our country is still a developing country. Our innovations will definitely raise a step towards our country.

We are grateful to the principal of Govt. V.Y.T. PG. Autonomous college, Dr. M. A. Siddiqui who permitted us to attend this internship program.

Also, we are very thankful to PM-USHA for providing us fund so that we could able to attend this internship program.

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We would like to say special thanks to Dr. Ramashankar Singh, Dr. Anita Shukla, Dr. Sitieshwari Chandraker, Dr. Abhishek Kumar Misra, Dr. Kusumanjali Deshmukh, Mr. Bhupendra Das and Mr. Neeraj Yadav who guided us a lot during our project.

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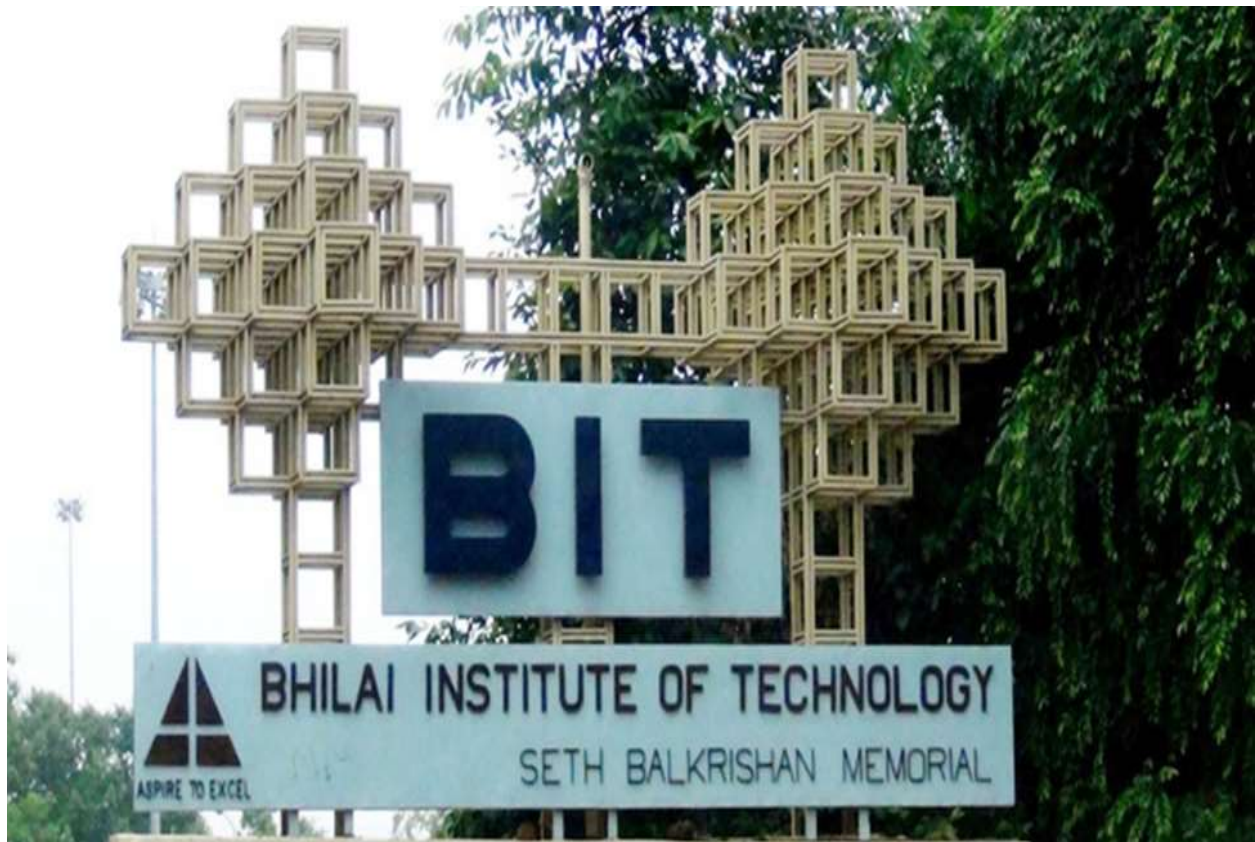
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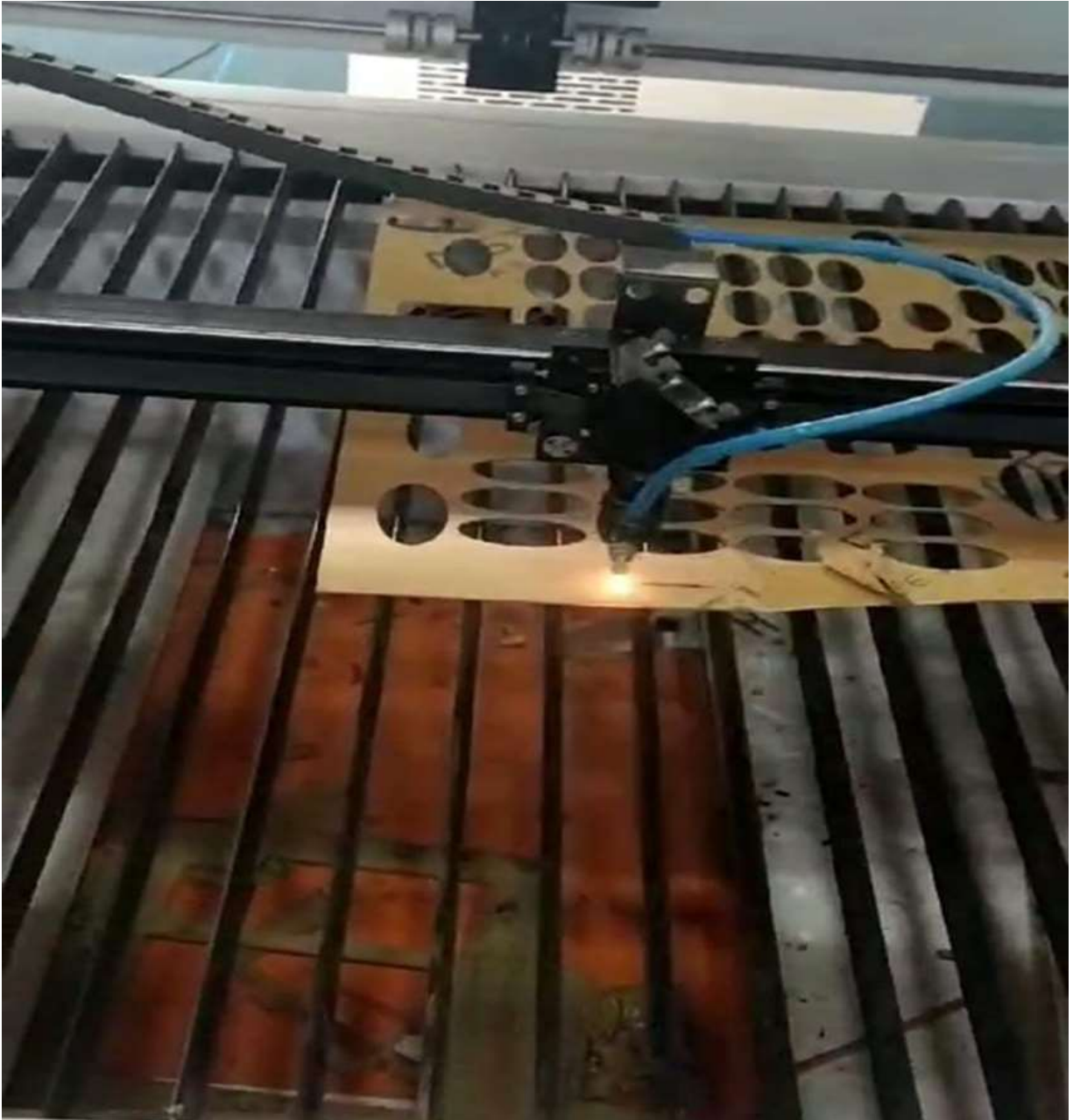
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# **WORKING OF LASER CUTTING MACHINE**

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3D printers are related to additive Manufacturing. 3D printers use Computer – aided design to understand a design. When a design is ready, a Material that can be dispensed through a hot nozzle or precision tool is printed layer by layer to create a three- Dimensional Object from Scratch.



# **INTRODUCTION**

Now days the no. of vehicles on road is increasing drastically and no. of accident on road also increases. Especially at night most of the accidents are occurred due to dazzling of headlight. While driving at night the headlight beam of oncoming vehicle is directly effects driver's eyes and eyes gets blur, it takes 3 to 8 sec to recover to its normal vision. Below fig. shows the high beam of headlight which causes blurriness on driver's eyes. If at that time vehicle speed is 70km/h, causes the vehicle goes out of road or strikes on oncoming vehicle.

In every vehicle dipper beam is provided in addition with the upper beam to reduce the dazzle from oncoming vehicle. Automatic dipper light control is a system which automatically changes the headlight from upper to dipper beam by sensing the headlight of oncoming vehicle.



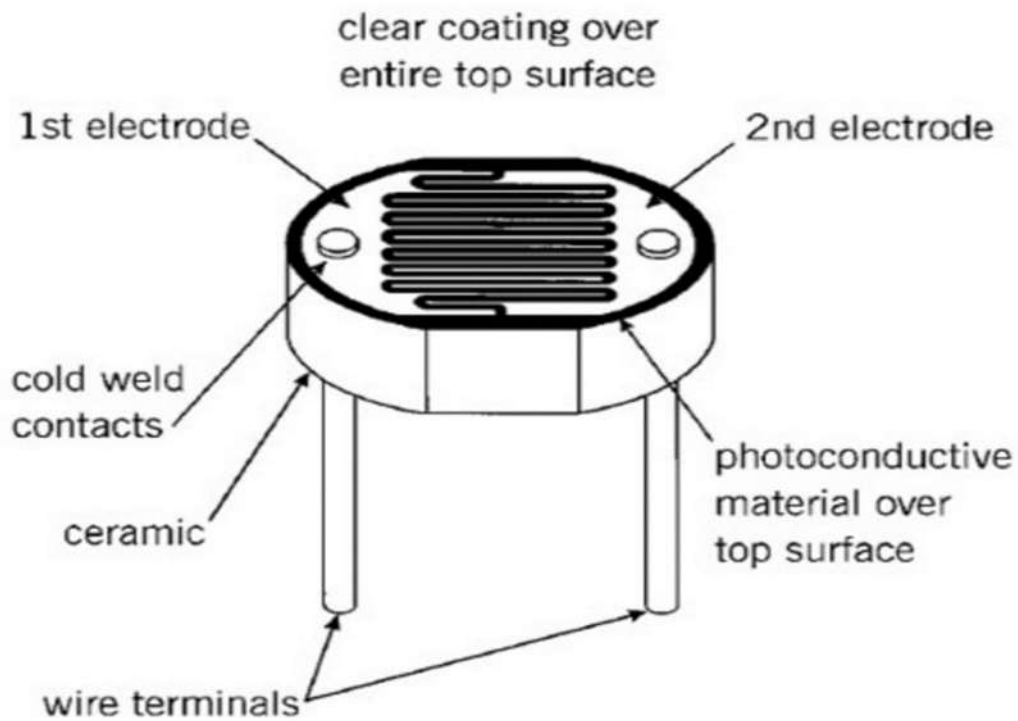
# OUR PROJECT - AUTOMATIC UPPER-DIPPER SYSTEM FOR THE VEHICLES

During Internship program, we made a working model on “Automatic Upper-Dipper system for the vehicles”, under the guidance of Prof. Kauleshwar Prasad, LAB Guru at Idea lab, BIT Durg. This system eliminate need for the driver to manually switch on or switch off the dipper beam inmost driving situations. The automatic Upper-Dipper system reacts like the human eyes to headlight of incoming vehicles and independently turns beam to Dipper when needed.



# **WHAT IS LDR (LIGHT DEPENDENT RESISTOR)**

As the name states is a special type of resistor that work on the photoconductivity principle. In the system LDR is act as sensor to sense the headlight beam of oncoming vehicles.



# WHAT IS RELAY

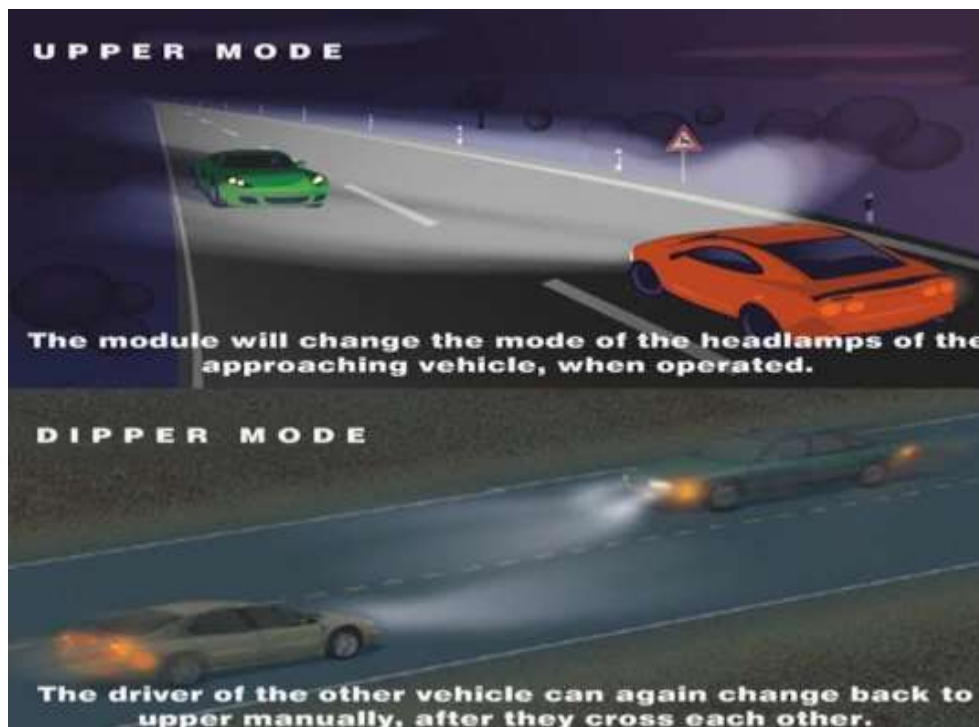
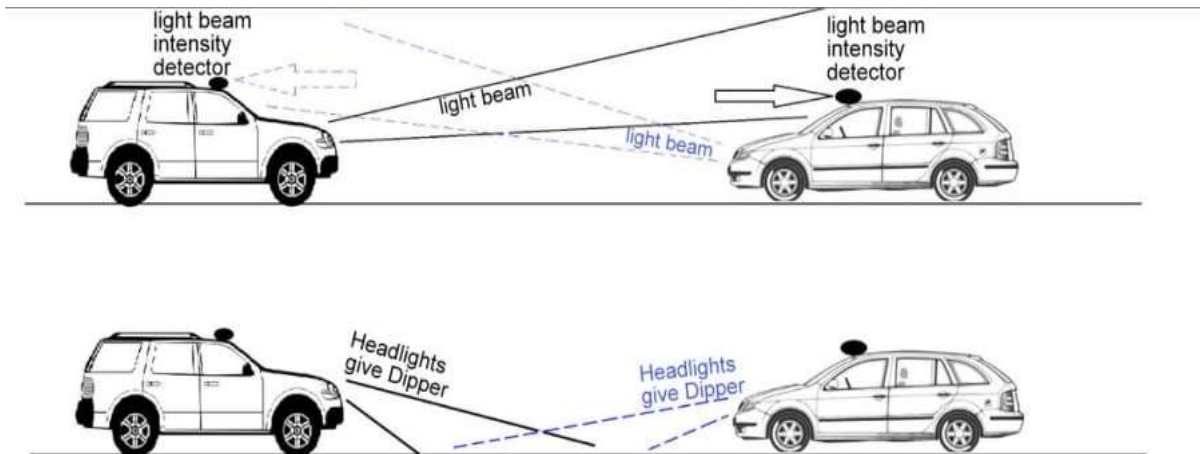
In this system relay is used as switch to change the lamp connections from Upper beam to Dipper beam. Relay is electromagnetic switch which operates when current is flowing through its coil. Connection of Upper beam is given to NC (normally close) terminal, Dipper beam is given to NO (normally open) terminal and common is connected directly connected to power supply.



# WORKING PROCESS OF OUR MODEL

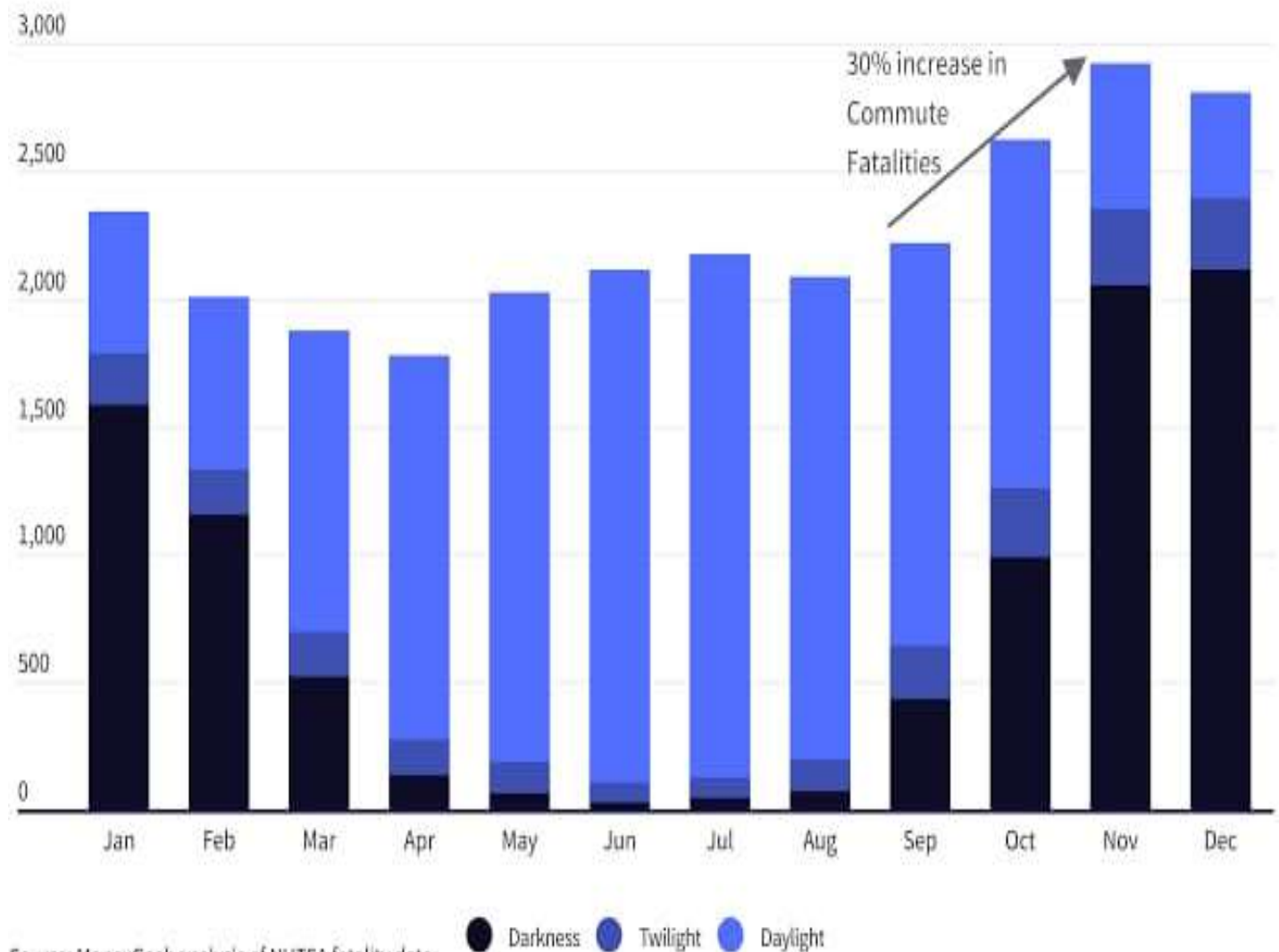
As we all know the Upper-Dipper light in vehicles. It goes up and down with a switch. By using this device, we can automatically up and down the vehicles light.

Like if two vehicles are coming head-on and if one or both of them have kept the light in Upper mode. So, this device was installed in both the vehicles by sensing the lights will convert Upper light into Automatic Dipper light. Due to which the risk of accident can be reduced.



# **RATIO OF THE ACCIDENT IN (2023)**

**Fatal Accidents During Weeknight Commute (4-7 p.m.) by Light Conditions**



## **AIM OF THE PROJECT**

One of the essential safety features that need to be installed is automatic Upper –Dipper control of headlight, this feature can mainly use during night time driving. Human eyes are very sensitive to the light, if eyes suddenly come with the light after darkness, cornea present in eyes gets contract i.e. vision gets blank and require some time to recover the vision. Many time the situation comes when suddenly vehicle approaches from front with headlight in Upper mode causes blindness to the eyes of the driver. During that time vehicles covers some amount of distance, here chance of accident may occur. It is a sheer luck if person goes safely through that situation. To overcome this manual dipping problem, an automatic mechanism has made to dip the headlight automatically whenever situation occurs.

# **DEMONSTRATION OF OUR PROJECT AND CERTIFICATION DAY**

Finally, the day of arrived. We demonstrated our project in front of all teachers of IDEA LAB namely Dr. Santosh Mishra, Dr. Anil Kumar, Prof. Kauleshwar Prasad, Dr. Anupam Agrawal, Prof. Suchitra Pandey and Dr. Puspendra Singh they admired our efforts a lot. They encouraged us and inspired us to continue working on such project and making models.





## SOME HIGHLIGHT OF OUR INTERNSHIP PROGRAM



# **FEEDBACK**

## **LAXMINARAYAN**

During this program I learn how we can create useful things in low cost and make it useable for all.





# PROJECT REPORT

ON

“AUTOMATIC ALARMING SYSTEM FOR TRAIN”

SUBMITTED TO

GOVT. V.Y.T.PG. AUTONOMOUS COLLEGE DURG (C.G.)



MASTER OF SCIENCE IN PHYSICS

GUIDED BY

Dr. Santosh Mishra

SUBMITTED BY

Lokeshwari Yadav



Session 2023-2024

DEPARTMENT OF PHYSICS

GOVT. V.Y.T.PG. AUTONOMOUS COLLEGE DURG (C.G.)



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BHILAI HOUSE, G.E. ROAD, DURG (CHHATTISGARH), INDIA

(SETH BALKRISHAN MEMORIAL)



No. BIT/IDEA LAB /2023/ INT / 03

Date: 15<sup>th</sup> NOV 2023

## Certificate Of Completion



This is to certify that **LOKESHWARI YADAV**, 1<sup>st</sup> Semester M.Sc. (Physics), Govt. V.Y.T. Post Graduate Autonomous College, Durg, C.G., has successfully completed her Internship with AICTE IDEA Lab BIT, Durg from October 18<sup>th</sup>, 2023 to November 15<sup>th</sup>, 2023, held at Bhilai Institute of Technology, Durg, C.G.

Best wishes for all future endeavors.

**Dr. Arun Arora**  
Chief Mentor, IDEA Lab  
BIT, Durg (C.G.)

**Dr. Pawan Kumar Patnaik**  
Coordinator, IDEA Lab  
BIT, Durg (C.G.)

## ACKNOWLEDGMENT

In Present day technology can become the “wings” that will allow the educational world to fly further and faster than ever before- if we allow it. Technology has the potential to revolutionize education because they are like two coins of the same side, without which it is impossible to imagine the comprehensive development of any country.

We are incredibly grateful to the principal of **GOVT. V.Y.T.PG. Autonomous college durg**, Dr. M.A. Siddiqui sir who permitted us to attend this internship program at Bhilai institute of technology.

Also, thankful **PM-USHA** for providing fund to us, so that we can able to succeed to making the project.

Furthermore, we would like to express our gratitude to Dr. Jageet kaur Saluja Ma'am “**Head of the Physics Department**”, for providing us with this amazing chance to participate in the internship program.

We express our sincere gratitude to Dr. R.N. Singh Sir, Dr. Anita Shukla Ma'am, Dr. Siddheshwari Chandraker Ma'am, Dr. Abhishek Mishra Sir, Dr. Kusumanjali Deshmukh Ma'am, Mr. Bhupendra Das Sir and Mr. Neeraj Yadav Sir, for your invaluable guidance during our project.

24 students from M.Sc. Previous participated in a group of 4 students for this internship program. We created a total of **6 project** using our creativity and gained a lot of knowledge.

It was a very good time for us to learn something new and innovative, which will help us a lot in making more projects in the future, so that we can also contribute toward achieving the goal of **ViksitBhart@2047**.

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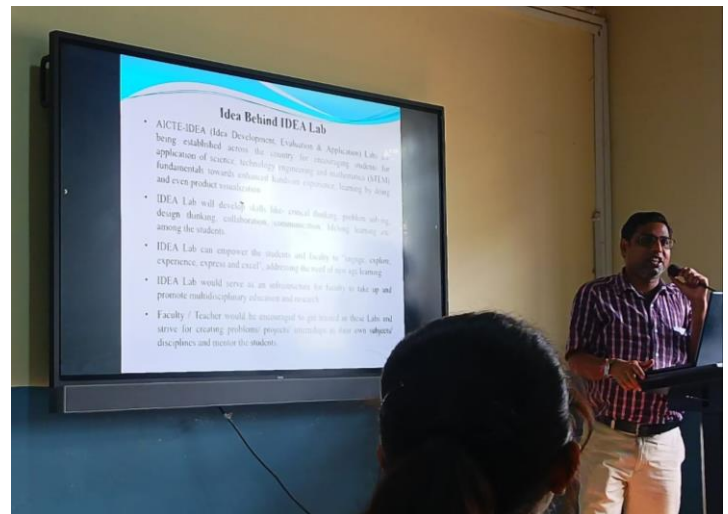
## A BRIEF OVERVIEW OF THE INTERNSHIP PROGRAM

The Bhilai Institute of Technology (BIT) Durg is well-known for its aesthetically pleasing campus, excellent instructors with a wealth of experience, and committed staff.



We all had the wonderful opportunity to participate in an internship program at **IDEA LAB**, which ran from **October 18, 2023, to November 15, 2023.**

Throughout the course of this internship program, we attended numerous technical workshops where we learned about Arduino and LDR and observed a variety of machines, including those that printed cups, t-shirts, laser cut objects, 3D prints, and many other things.



## 3D PRINTER

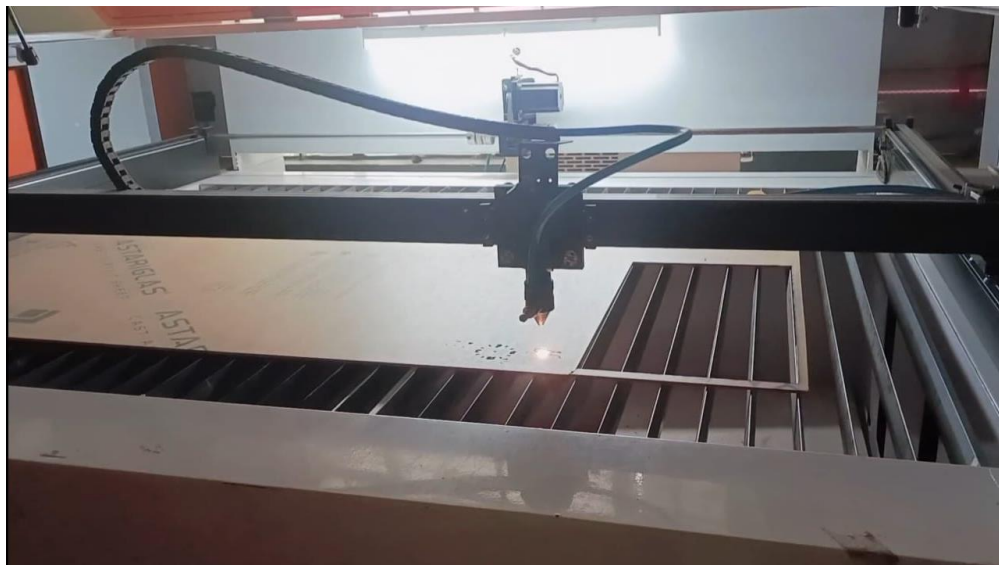
3D printing is a process in which a digital model is turned into a tangible, solid, three-dimensional object, usually by laying down many successive, thin layers of a material. 3D printing has become popular so quickly because it makes manufacturing accessible to more people than ever before.



[3D Printer](#)

## LASER CUTTING MACHINE

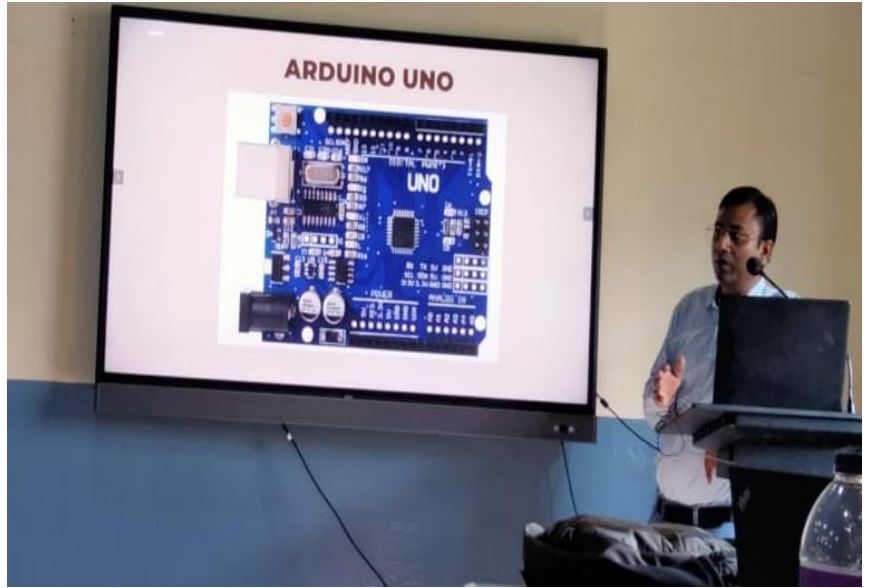
Laser cutting is mainly a thermal process in which a focused laser beam is used to melt material in a localized area. A co-axial gas jet is used to eject the molten material and create a kerf. A continuous cut is produced by moving the laser beam or workpiece under CNC control.



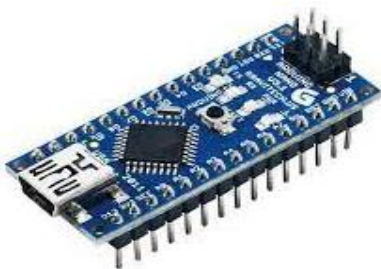
[Laser Cutting Machine](#)

## ARDUINO

The Arduino Uno comes with USB interface, 6 analog input pins, 14 I/O digital ports that are used to connect with external electronic circuits. Out of 14 I/O ports, 6 pins can be used for PWM output. It allows the designers to control and sense the external electronic devices in the real world.



Arduino is an Italian open-source hardware and software company, project, and user community that designs and manufactures single-board microcontrollers and microcontroller kits for building digital devices. Its hardware products are licensed under a CC BY-SA license, while the software is licensed under the GNU Lesser General Public License (LGPL) or the GNU General Public License (GPL), permitting the manufacture of Arduino boards and software distribution by anyone. Arduino boards are available commercially from the official website or through authorized distributors.



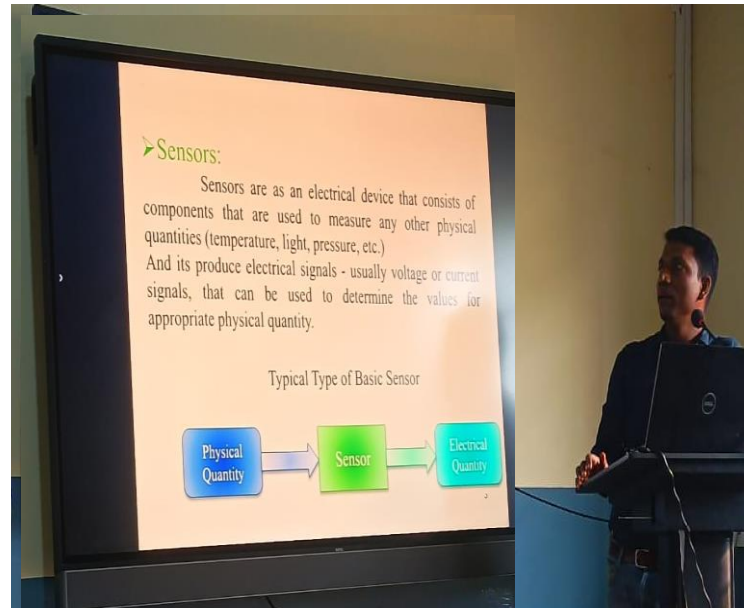
[Arduino Nano](#)



[Arduino Uno](#)

# SENSORS

A sensor is a device that detects the change in the environment and responds to some output on the other system. A sensor converts a physical phenomenon into a measurable analog voltage converted into a human -readable display or transmitted for reading or further processing.



One of the best-known sensors is the microphone, which converts sound energy to an electrical signal that can be amplified, transmitted, recorded, and reproduced. Sensors are used in our everyday lives.



[Ultrasonic Sensor](#)



[Touch Sensor](#)

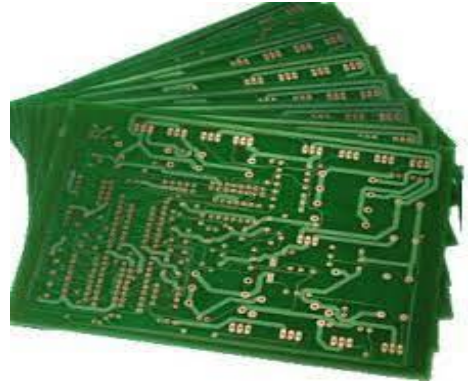


[Color Sensor](#)

## PCB (PRINTED CIRCUIT BOARD)



PCBs are made by isolating the surface copper foil conductive layer through the board base insulation material, which allows current to flow through various components along a pre-designed route.

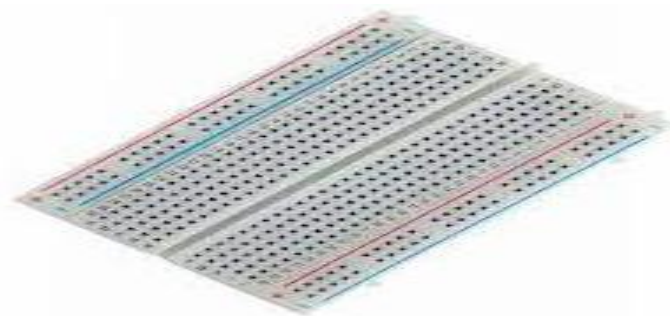


Ultimately achieving functions such as power making, amplification, attenuation, modulation, demodulation, and coding.

PCB (Printed Circuit Board)

## BREAD BOARD

A breadboard (sometimes called a plug block) is used for building temporary circuits. It is useful to designers because it allows components to be removed and replaced easily. It is useful to the person who wants to build a circuit to demonstrate its action, then to reuse the components in another circuit.



Bread Board

## INTRODUCTION

Our Project is design strategy for an Arduino-based safety system to prevent railway accidents. When a train is 500 meters away from an object (a person or an animal), this railway accident prevention safety system commands the person or animal if it is on the track.

In this system, a high-frequency sound wave is transmitted by an ultrasonic sensor, which then waits for the sound to return before calculating the distance based on the required amount of time. In order to alert people to the impending arrival of a train, an ultrasonic sensor works by scanning for and identifying the vehicle.

It then sends a signal to a buzzer to generate an alarm on the railway track. Keywords – Arduino, Ultrasonic Sensor, Buzzer, DC Servomotor, LED Lights. To prevent accidents on the rails, at crossings, etc.

So, the project here is the detection of trains approaching the track. Arduino, an ultrasonic sensor, and a buzzer are used in this.

The train that is approaching the track is detected by this ultrasonic sensor-based technology. The proposed technology locates the train using ultrasonic sensors. A sensor placed between 500 meters or at our discretion can detect the arrival of the train.

## OUR PROJECT (AUTOMATIC ALARMING SYSTEM FOR TRAIN)

Under the direction of pro. Santosh Mishra, LAB Guru at **Idea lab, BIT Durg**, we created a working project on “**Automatic Alarming system for train**” or “**safety system for living beings**” during the internship program.

Avoiding Railroad Accidents, we are presenting A project using an Arduino ultrasonic sensor-based safety system our aim is to avoid accidents on train tracks. We are aware that the country's most popular mode of transit is rail. Accidents are happening more frequently at the railway crossing.



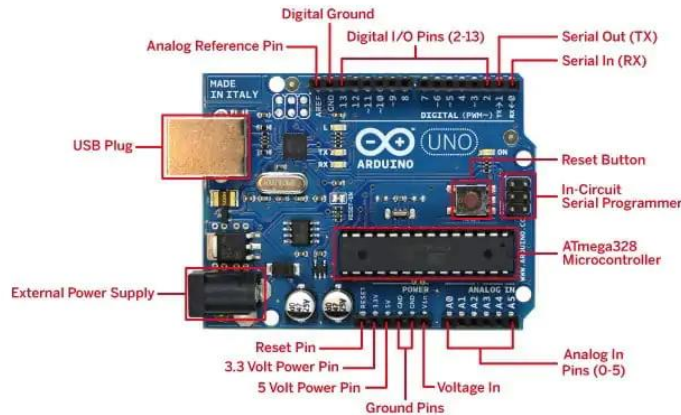
Which can be used in a simple and easy way to reduce the increase in train accidents so that precious human lives and other valuable can be saved.

**The components we use in our project – Arduino uno, ultrasonic sensor, led buzzer etc.**

## ARDUINO UNO

Arduino Uno is a microcontroller board based on the microchip Atmega328P. A Micro controller comprises of an incredible CPU.

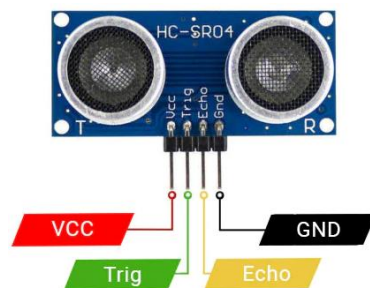
Primarily combined with memory different I/O interfaces, for example, parallel port clock, ADC and DAC coordinates and to a solitary silicon chip.



## Arduino Uno

## ULTRASONIC SENSOR

An ultrasonic Sensor transmits ultrasonic waves into the air and detects reflected waves from an object. There are many applications for ultrasonic sensor such as in instructions alarm systems, automatic door openers and backup sensors for automobile etc.



## Ultrasonic Sensor

## LED (LIGHT EMITTING DIODE)

Light Emitting Diodes (LEDs) are very useful as indicators to show when something is on, LEDs work at low voltage and take very little current which makes them ideal for low power circuits.



LED

## BUZZER

A buzzer or beeper is an audio signaling device. Generally, it is powered through DC voltage and used in timers, alarm devices, printers, alarms, computers, etc.



Buzzer

## WORKING

All the components of the system are connected with the control unit. The power supply supplies the power to the control unit. The ultrasonic sensors are used to detect the obstacles in the train path. Ultrasonic sensors work on a principle similar to sonar which evaluates distance of a target by interpreting the echoes from ultrasonic sound waves.



By employing an Arduino-based safety system to generate an alarm through a buzzer, any obstruction (people) can be alerted and made aware that a train is approaching them at a distance, preventing accidents on the railway track.



A train's location is found and tracked using an ultrasonic sensor. Alarms are generated at the track using buzzers. An ultrasonic sensor was employed as a proximity switch to warn individuals when a train was approaching from a distance of approximately 500 meters away. The ultrasonic sensor automatically blinks a red light and makes a buzzing sound when something blocks it.

## DEMONSTRATION OF OUR PROJECT

&

## CERTIFICATION DAY

Last but not least, the big day arrived. We presented our project to all of the IDEA LAB instructors, including Drs. Santosh Mishra, Anil Kumar, Pro. Kauleshwar Prasad, Anupam Agrwal, Mrs. Suchitra Panday, and Puspendra Singh.



They were really impressed with our work. They gave us motivation and support to carry on with these initiatives and model making.

## HIGHLIGHTS OF OUR INTERNSHIP PROGRAM



## MY FEEDBACK

During this internship programmed, I learned a lot of skills including soldering and coding, among many others.



# PROJECT REPORT

ON

**“AUTOMATIC ALARMING SYSTEM FOR TRAIN”**

**SUBMITTED TO**

**GOVT. V.Y.T.PG. AUTONOMOUS COLLEGE DURG (C.G.)**



**MASTER OF SCIENCE IN PHYSICS**

**GUIDED BY**

**Dr. Santosh Mishra**

**SUBMITTED BY**

**Rupali Sahu**



**Session 2023-2024**

**DEPARTMENT OF PHYSICS**

**GOVT. V.Y.T.PG. AUTONOMOUS COLLEGE DURG (C.G.)**



# BHILAI INSTITUTE OF TECHNOLOGY, DURG

An Autonomous Institution | All UG Programs NBA Accredited | 'A' Grade NAAC Accredited

BHILAI HOUSE, G.E. ROAD, DURG (CHHATTISGARH), INDIA

(SETH BALKRISHAN MEMORIAL)



No. BIT/IDEA LAB /2023/ INT / 04

Date: 15<sup>th</sup> NOV 2023

## Certificate Of Completion




This is to certify that **RUPALI SAHU**, 1<sup>st</sup> Semester M.Sc. (Physics), Govt. V.Y.T. Post Graduate Autonomous College, Durg, C.G., has successfully completed her Internship with AICTE IDEA Lab BIT, Durg from October 18<sup>th</sup>, 2023 to November 15<sup>th</sup>, 2023, held at Bhilai Institute of Technology, Durg, C.G.

Best wishes for all future endeavors.

  
**Dr. Arun Arora**

Chief Mentor, IDEA Lab  
BIT, Durg (C.G.)

  
**Dr. Pawan Kumar Patnaik**

Coordinator, IDEA Lab  
BIT, Durg (C.G.)

## ACKNOWLEDGMENT

In Present day technology can become the “wings” that will allow the educational world to fly further and faster than ever before- if we allow it. Technology has the potential to revolutionize education because they are like two coins of the same side, without which it is impossible to imagine the comprehensive development of any country.

We are incredibly grateful to the principal of **GOVT. V.Y.T.PG. Autonomous college durg**, Dr. M.A. Siddiqui sir who permitted us to attend this internship program at Bhilai institute of technology.

Also, thankful **PM-USHA** for providing fund to us, so that we can able to succeed to making the project.

Furthermore, we would like to express our gratitude to Dr. Jageet kaur Saluja Ma'am “**Head of the Physics Department**”, for providing us with this amazing chance to participate in the internship program.

We express our sincere gratitude to Dr. R.N. Singh Sir, Dr. Anita Shukla Ma'am, Dr. Siddheshwari Chandraker Ma'am, Dr. Abhishek Mishra Sir, Dr. Kusumanjali Deshmukh Ma'am, Mr. Bhupendra Das Sir and Mr. Neeraj Yadav Sir, for your invaluable guidance during our project.

24 students from M.Sc. Previous participated in a group of 4 students for this internship program. We created a total of **6 project** using our creativity and gained a lot of knowledge.

It was a very good time for us to learn something new and innovative, which will help us a lot in making more projects in the future, so that we can also contribute toward achieving the goal of **ViksitBhart@2047**.

## TABLE OF CONTENT

<b>S.N.</b>	<b>Topic</b>	<b>Page No.</b>
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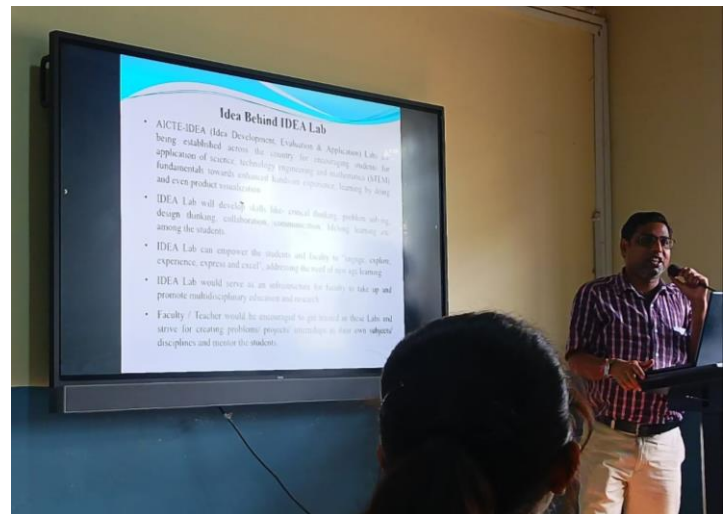
## A BRIEF OVERVIEW OF THE INTERNSHIP PROGRAM

The Bhilai Institute of Technology (BIT) Durg is well-known for its aesthetically pleasing campus, excellent instructors with a wealth of experience, and committed staff.



We all had the wonderful opportunity to participate in an internship program at **IDEA LAB**, which ran from **October 18, 2023, to November 15, 2023.**

Throughout the course of this internship program, we attended numerous technical workshops where we learned about Arduino and LDR and observed a variety of machines, including those that printed cups, t-shirts, laser cut objects, 3D prints, and many other things.



## 3D PRINTER

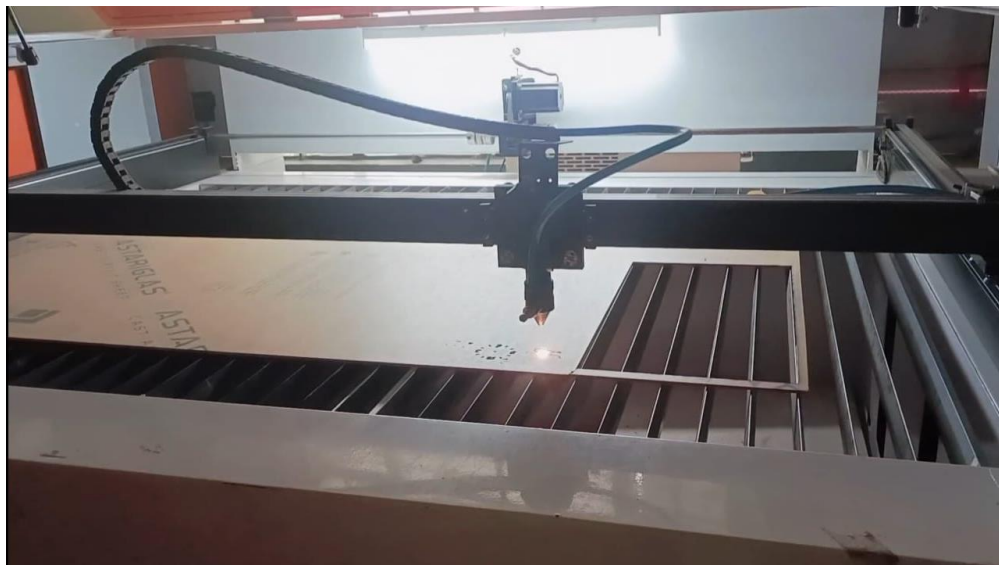
3D printing is a process in which a digital model is turned into a tangible, solid, three-dimensional object, usually by laying down many successive, thin layers of a material. 3D printing has become popular so quickly because it makes manufacturing accessible to more people than ever before.



[3D Printer](#)

## LASER CUTTING MACHINE

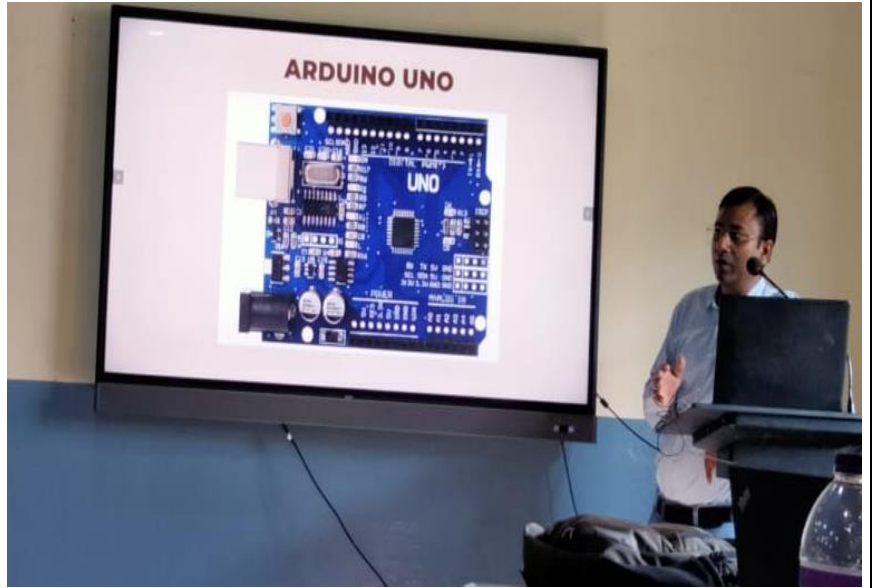
Laser cutting is mainly a thermal process in which a focused laser beam is used to melt material in a localized area. A co-axial gas jet is used to eject the molten material and create a kerf. A continuous cut is produced by moving the laser beam or workpiece under CNC control.



[Laser Cutting Machine](#)

## ARDUINO

The Arduino Uno comes with USB interface, 6 analog input pins, 14 I/O digital ports that are used to connect with external electronic circuits. Out of 14 I/O ports, 6 pins can be used for PWM output. It allows the designers to control and sense the external electronic devices in the real world.



Arduino is an Italian open-source hardware and software company, project, and user community that designs and manufactures single-board microcontrollers and microcontroller kits for building digital devices. Its hardware products are licensed under a CC BY-SA license, while the software is licensed under the GNU Lesser General Public License (LGPL) or the GNU General Public License (GPL), permitting the manufacture of Arduino boards and software distribution by anyone. Arduino boards are available commercially from the official website or through authorized distributors.



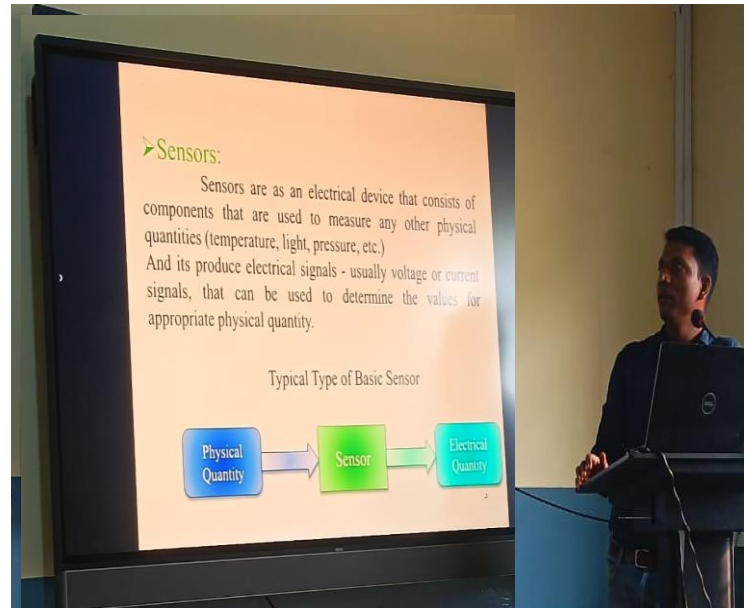
[Arduino Nano](#)



[Arduino Uno](#)

# SENSORS

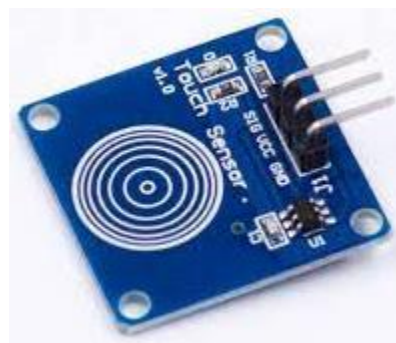
A sensor is a device that detects the change in the environment and responds to some output on the other system. A sensor converts a physical phenomenon into a measurable analog voltage converted into a human -readable display or transmitted for reading or further processing.



One of the best-known sensors is the microphone, which converts sound energy to an electrical signal that can be amplified, transmitted, recorded, and reproduced. Sensors are used in our everyday lives.



[Ultrasonic Sensor](#)



[Touch Sensor](#)

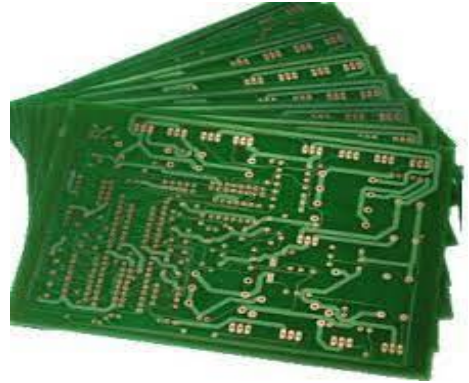


[Color Sensor](#)

## PCB (PRINTED CIRCUIT BOARD)



PCBs are made by isolating the surface copper foil conductive layer through the board base insulation material, which allows current to flow through various components along a pre-designed route.

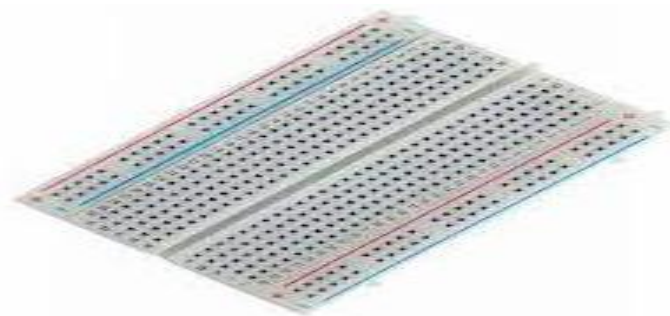


Ultimately achieving functions such as power making, amplification, attenuation, modulation, demodulation, and coding.

PCB (Printed Circuit Board)

## BREAD BOARD

A breadboard (sometimes called a plug block) is used for building temporary circuits. It is useful to designers because it allows components to be removed and replaced easily. It is useful to the person who wants to build a circuit to demonstrate its action, then to reuse the components in another circuit.



Bread Board

## INTRODUCTION

Our Project is design strategy for an Arduino-based safety system to prevent railway accidents. When a train is 500 meters away from an object (a person or an animal), this railway accident prevention safety system commands the person or animal if it is on the track.

In this system, a high-frequency sound wave is transmitted by an ultrasonic sensor, which then waits for the sound to return before calculating the distance based on the required amount of time. In order to alert people to the impending arrival of a train, an ultrasonic sensor works by scanning for and identifying the vehicle.

It then sends a signal to a buzzer to generate an alarm on the railway track. Keywords – Arduino, Ultrasonic Sensor, Buzzer, DC Servomotor, LED Lights. To prevent accidents on the rails, at crossings, etc.

So, the project here is the detection of trains approaching the track. Arduino, an ultrasonic sensor, and a buzzer are used in this.

The train that is approaching the track is detected by this ultrasonic sensor-based technology. The proposed technology locates the train using ultrasonic sensors. A sensor placed between 500 meters or at our discretion can detect the arrival of the train.

## OUR PROJECT (AUTOMATIC ALARMING SYSTEM FOR TRAIN)

Under the direction of pro. Santosh Mishra, LAB Guru at **Idea lab, BIT Durg**, we created a working project on “**Automatic Alarming system for train**” or “**safety system for living beings**” during the internship program.

Avoiding Railroad Accidents, we are presenting A project using an Arduino ultrasonic sensor-based safety system our aim is to avoid accidents on train tracks. We are aware that the country's most popular mode of transit is rail. Accidents are happening more frequently at the railway crossing.



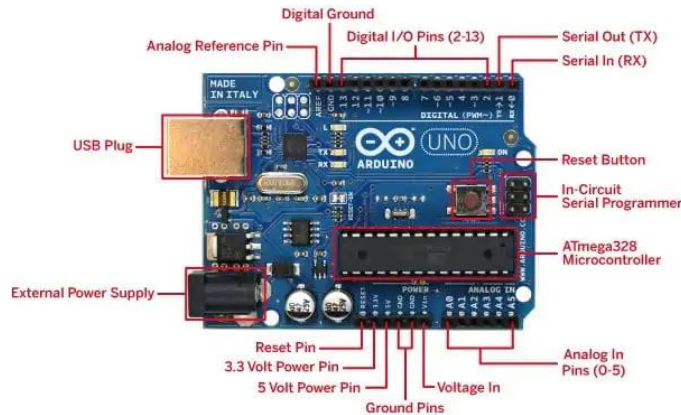
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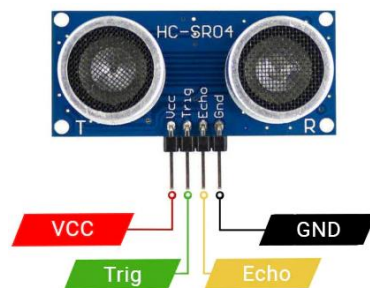
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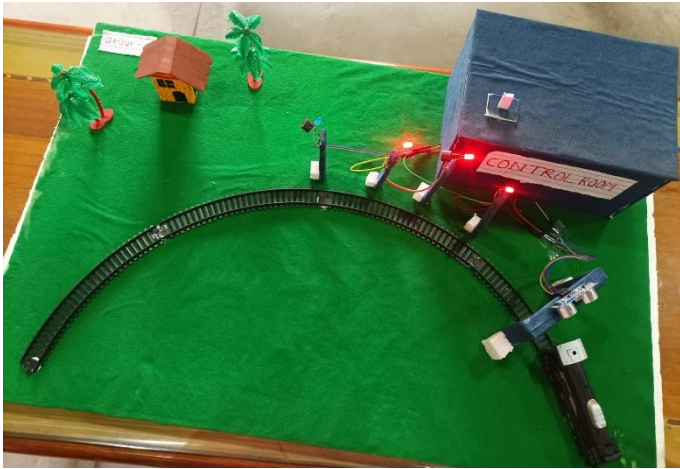
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## WORKING

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Last but not least, the big day arrived. We presented our project to all of the IDEA LAB instructors, including Drs. Santosh Mishra, Anil Kumar, Pro. Kauleshwar Prasad, Anupam Agrwal, Mrs. Suchitra Panday, and Puspendra Singh.



They were really impressed with our work. They gave us motivation and support to carry on with these initiatives and model making.

## HIGHLIGHTS OF OUR INTERNSHIP PROGRAM



## MY FEEDBACK

I learned a lot during the internship program, and what I liked most about it was that we collaborated as a team and shared positive ideas. Overall, I had a great time.

A  
PROJECT REPORT  
ON  
INTERNSHIP PROGRAM AT IDEA LAB BIT DURG CHHATTISGARH  
SUBMITTED TO  
GOVT. V. Y. T. PG. AUTONOMOUS COLLEGE DURG



**GUIDED BY**  
PROF. PUSHPENDRA SINGH

**SUBMITTED BY**  
SEVAK RAM  
(M.Sc. PREVIOUS)

SESSION 2023 – 24  
DEPARTMENT OF PHYSICS  
GOVT. V. Y. T. PG. AUTONOMOUS COLLEGE DURG



# BHILAI INSTITUTE OF TECHNOLOGY, DURG

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(SETH BALKRISHAN MEMORIAL)



No. BIT/IDEA LAB/2023/INT/24

Date: 15<sup>th</sup> NOV 2023


## Certificate Of Completion



This is to certify that **SEVAK RAM**, 1<sup>st</sup> Semester M.Sc. (Physics), Govt. V.Y.T. Post Graduate Autonomous College, Durg, C.G., has successfully completed his Internship with AICTE IDEA Lab BIT, Durg from October 18<sup>th</sup>, 2023 to November 15<sup>th</sup>, 2023, held at Bhilai Institute of Technology, Durg, C.G.

Best wishes for all future endeavors.

  
**Dr. Arun Arora**  
Chief Mentor, IDEA Lab  
BIT, Durg (C.G.)

  
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Coordinator, IDEA Lab  
BIT, Durg (C.G.)

## **ACKNOWLEDGMENT**

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We are grateful to the principal of Govt. V.Y.T. PG Autonomous college, Dr. M.A Siddiqui who permitted us to attend this internship programme .

Also, we are very thankful to PM-USHA for providing us fund so that we could able to attend this internship programme. Along with this we all are very grateful to the Head Department of physics Dr. Jagjeet kaur Saluja who gave us a wonderful opportunity to take part in this internship programme.

We would like to say special thanks to Dr. Ramashankar Singh, Dr. Anita Shukla, Dr. Sitieshwari Chandrakar , Dr. Abhishek Kumar Mishra , Dr. Kusumanjali Deshmukh, Mr. Bhupendra Das and Mr. Neeraj Yadav who guided us a lot during our project.

Practical work can motivate pupils, by stimulated interest and enjoyment, teach laboratory skills and enhance the learning of scientific knowledge.

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## **BRIEF DESCRIPTION ABOUT THE INTERNSHIP PROGRAM**

Bhilai Institute of Technology Durg, is Renowned for its Environment friendly campus with well – equipped infrastructure, outstanding faculty rich experience, and dedicated staff.

We all got a golden opportunity to attend an “Internship program AT IDEA LAB”, BIT Durg which was from 18th October to 15th November, 2023. During this internship program, there were many technology sessions through which learnt about Arduino, LDR and we saw different types of Machines like cup printing, t-shirt printing, laser cutting machine, 3D-printing Machine and many more.



## **About the IDEA LAB**

The purpose of IDEA LAB is provide all facilities under one roof, for conversion of an idea into prototype with these facilities in the campus more students and faculties will be encouraged to take up creative work and in the process, get training on creative thinking problem solving collaboration etc. The whole idea is transform engineering education with such a lab in all college and for this they must be proactively exposed all students to the IDEA Lab organized training sessions for interested students as well supported project and by providing online learning materials. Teacher must be also get trained in this labs to know their scope and opportunities in teaching learning process as well research and development project.



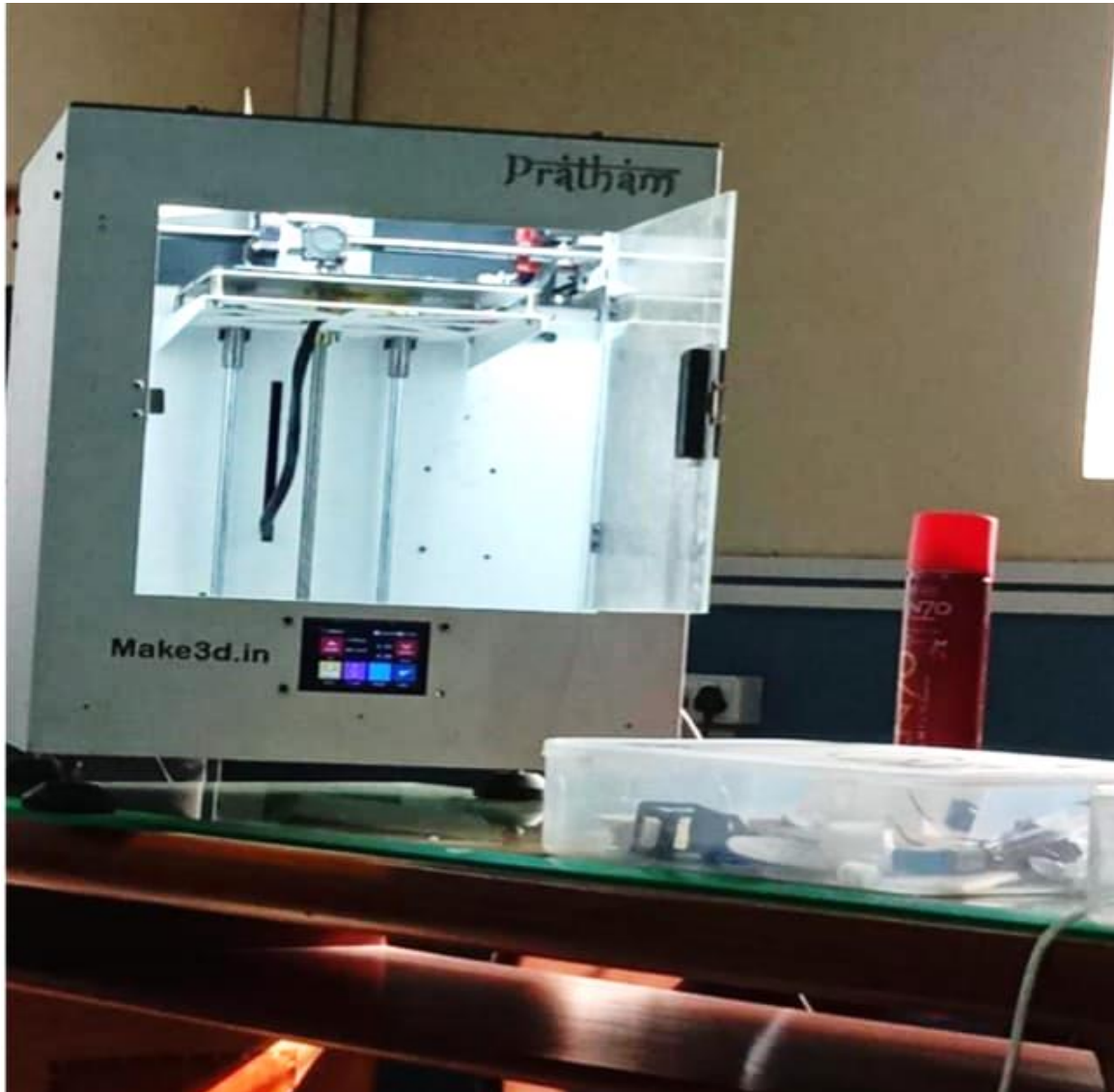
## **Working of laser cutting machine**

LASER Cutting uses a high – power laser which is directed through optics and computer numerical control (CNC) to direct the beam or material. Typically, the process uses a motion control system to follow a CNC or G-CODE of the pattern that is to be cut onto the material.



## **WORKING OF 3D PRINTING MACHINE**

3D printers are related to additive Manufacturing. 3D printers use Computer – aided design to understand a design. When a design is ready, a Material that can be dispensed through a hot nozzle or precision tool is printed layer by layer to create a three- Dimensional Object from Scratch.



# DTF PRINTING MACHINE

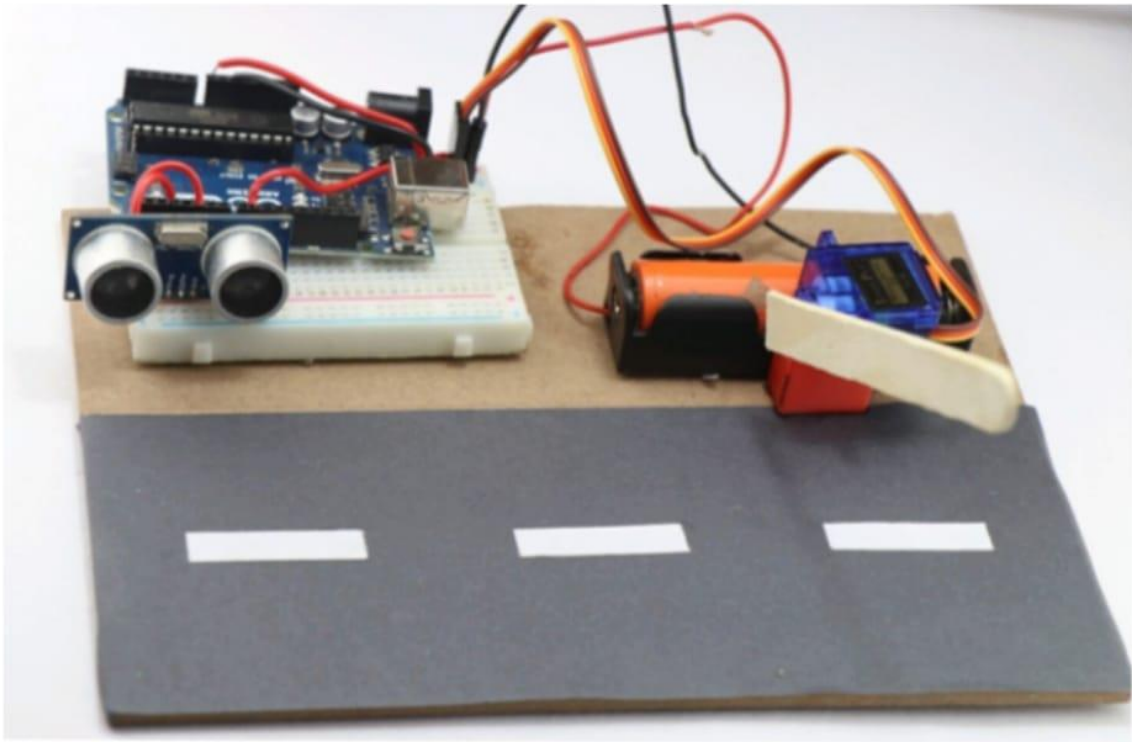
Direct to film or DTF is process that transfer print onto fabric or other substrates using a heat- press mechanism. Unlike the DTG method, which only work on cotton fabric, the printer DTF method can work on cotton and Poly blends. The heating plate is using special



protect I coating, your vinyl, clothes and iron will working that harmless to them the cover his resistance easy to clean and can make printing more steady.

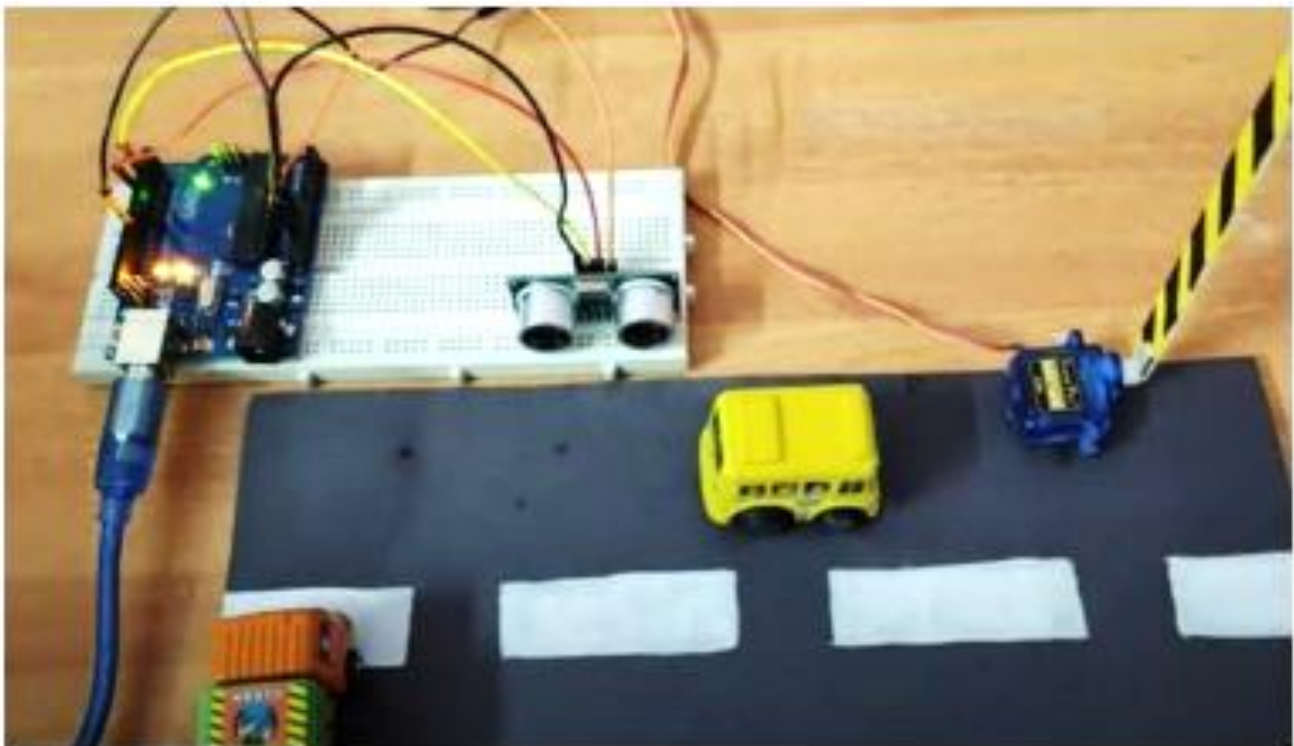
# Our project

## Automatic Toll Collection Gate System



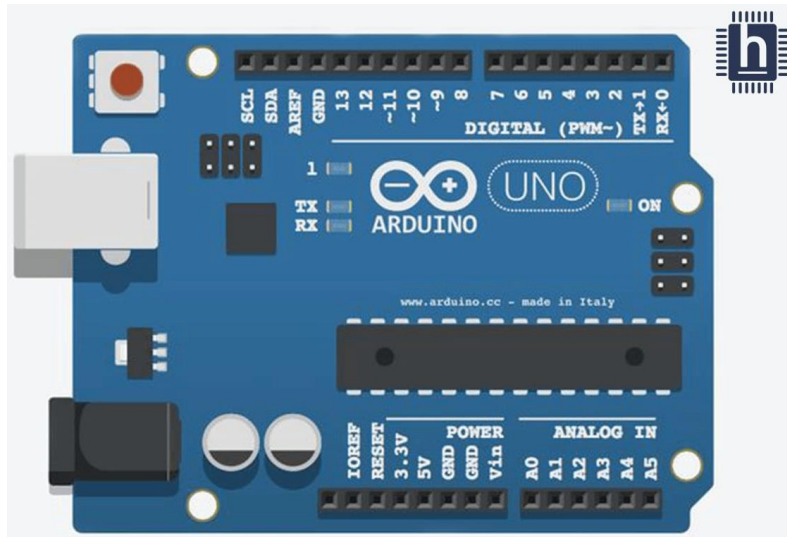
# WHAT IS THE ATCGS?

The Automatic Toll Collection Gate (ATCG) System is a new toll system designed to enhance convenience for drivers cashless toll collection and thus Reducing congestion at High-way tollgates.

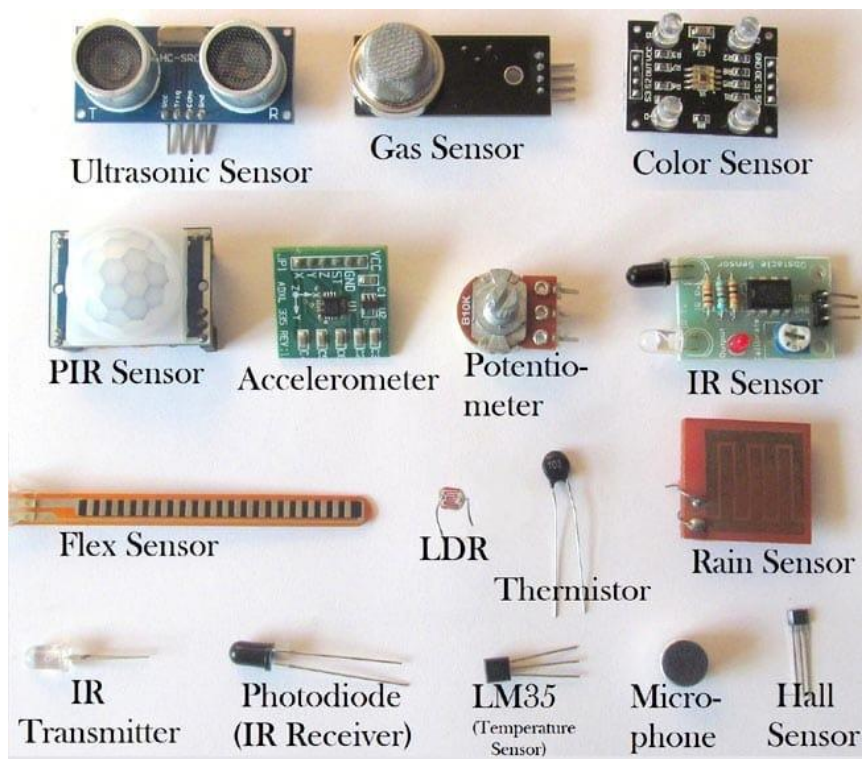


# Arduino Uno:-

Arduino Uno is a microcontroller board based on the ATmega328P. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz ceramic resonator, a USB connection, a power jack, an ICSP header and a reset button.



## Various types of sensor:-

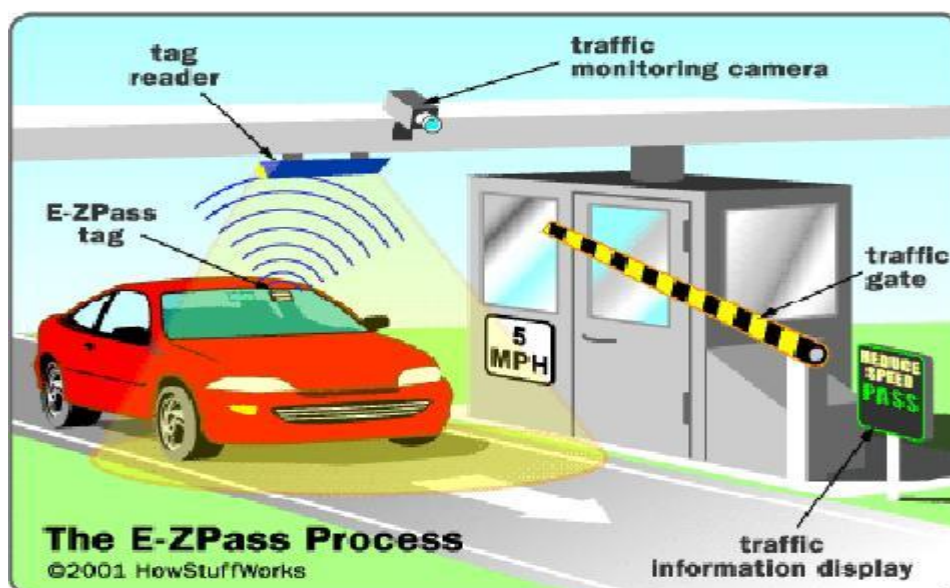


## Working process

The idea for this project was inspired from actual system, in actual toll they stop the vehicles using a stopper that is completely automated and it is activated when any vehicle passes in front the sensor, or some time it's activated through a button.



In our case, we are using an HC- SR04 or called as ultrasonic distance sensor to detect an obstacle(vehicle) and later to lift the barrier we are using micro servo, that is the mechanism involved in this project, Now let us dive into the building stage.



# CERTIFICATE DISTRIBUTION DAY



# **PROJECT DEMONSTRATION DAY**



### **Feedback:-**

**This program was very useful for us, in this we got to know about new machines, about their programming, how those machines work and got complete information about it. After getting information and learning about all the machines, we all formed different groups and did project work. After the project work was completed, I felt very good because I got to learn new machines. For all this, I would like to thank the Principal Sir of our college, the Head of our Physics Department and all the teachers.**



A  
PROJECT REPORT  
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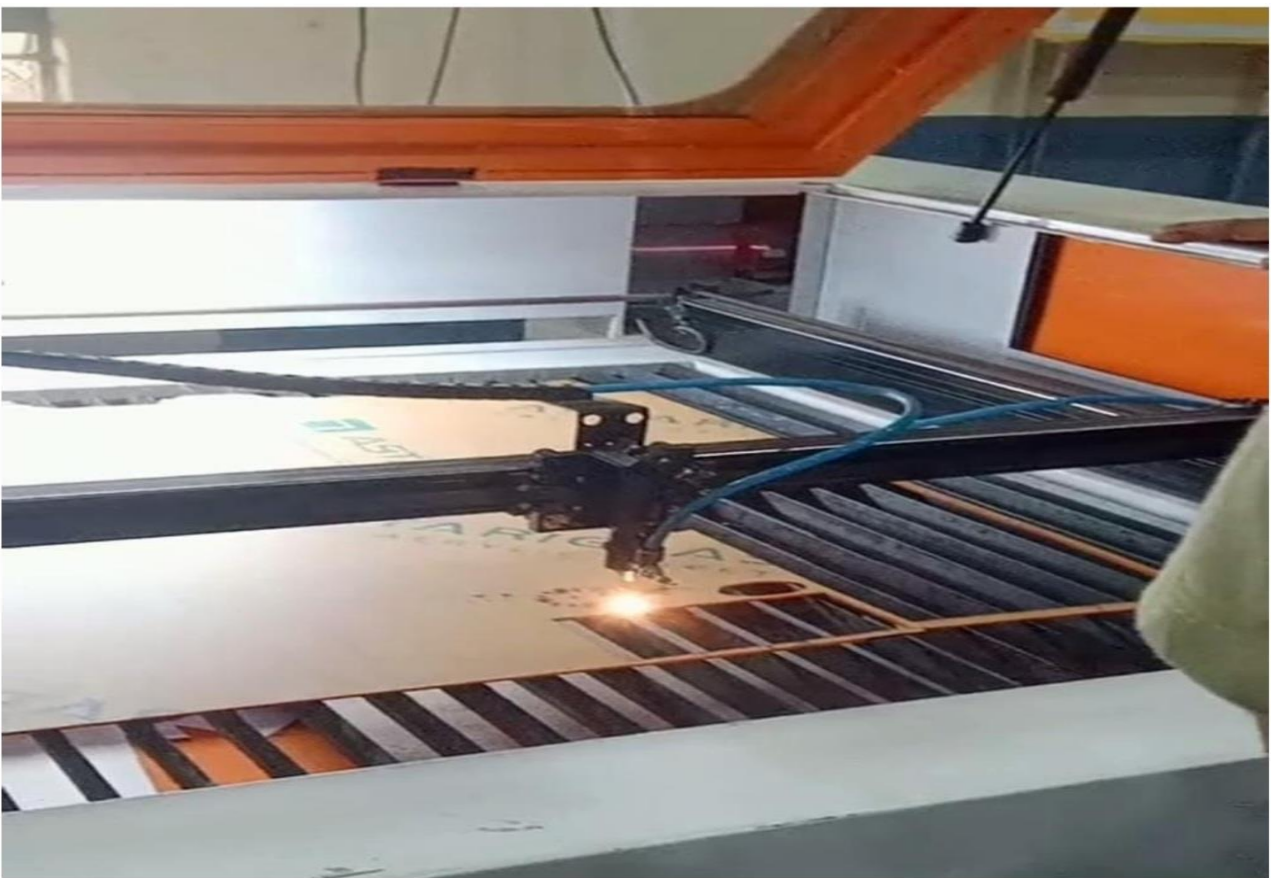
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## **WORKING OF 3D PRINTING MACHINE**

3D printers are related to additive Manufacturing. 3D printers use Computer – aided design to understand a design. When a design is ready, a Material that can be dispensed through a hot nozzle or precision tool is printed layer by layer to create a three- Dimensional Object from Scratch.



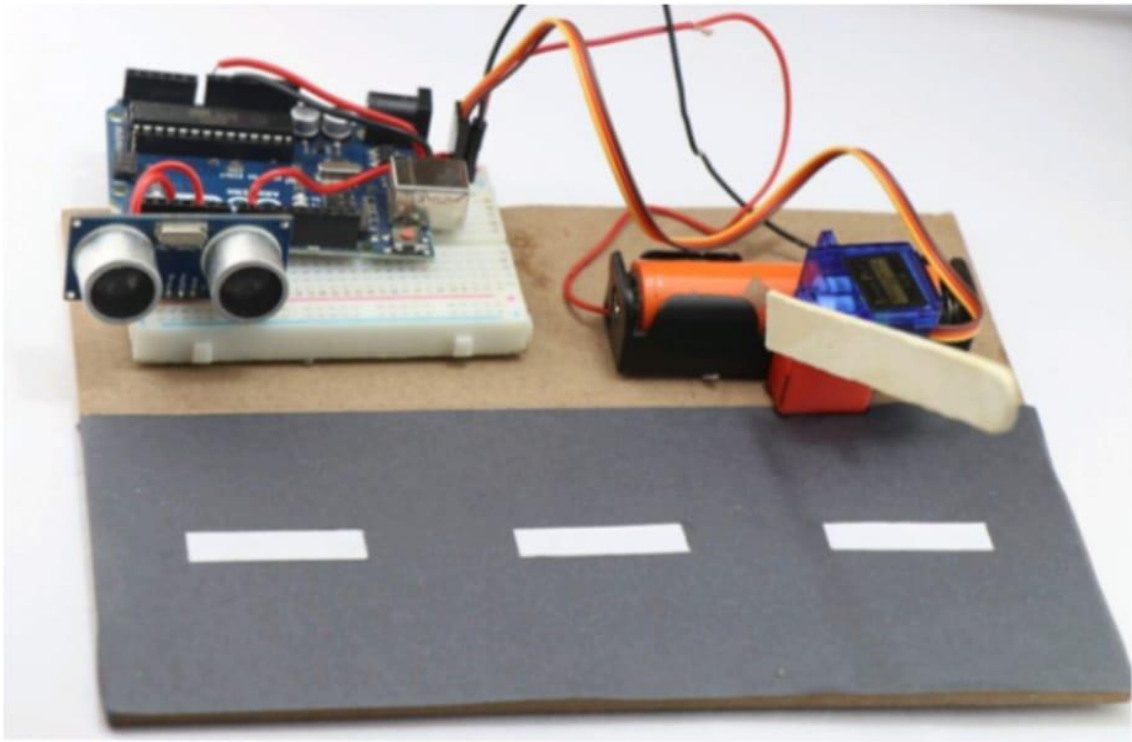
# **DTF PRINTING MACHINE**

Direct to film or DTF is process that transfer print onto fabric or other substrates using a heat- press mechanism. Unlike the DTG method, which only work on cotton fabric, the printer DTF method can work on cotton and Poly blends. The heating plate is using special protect l coating, your vinyl, clothes and iron will working that harmless to them the cover his resistance easy to clean and can make printing more steady.



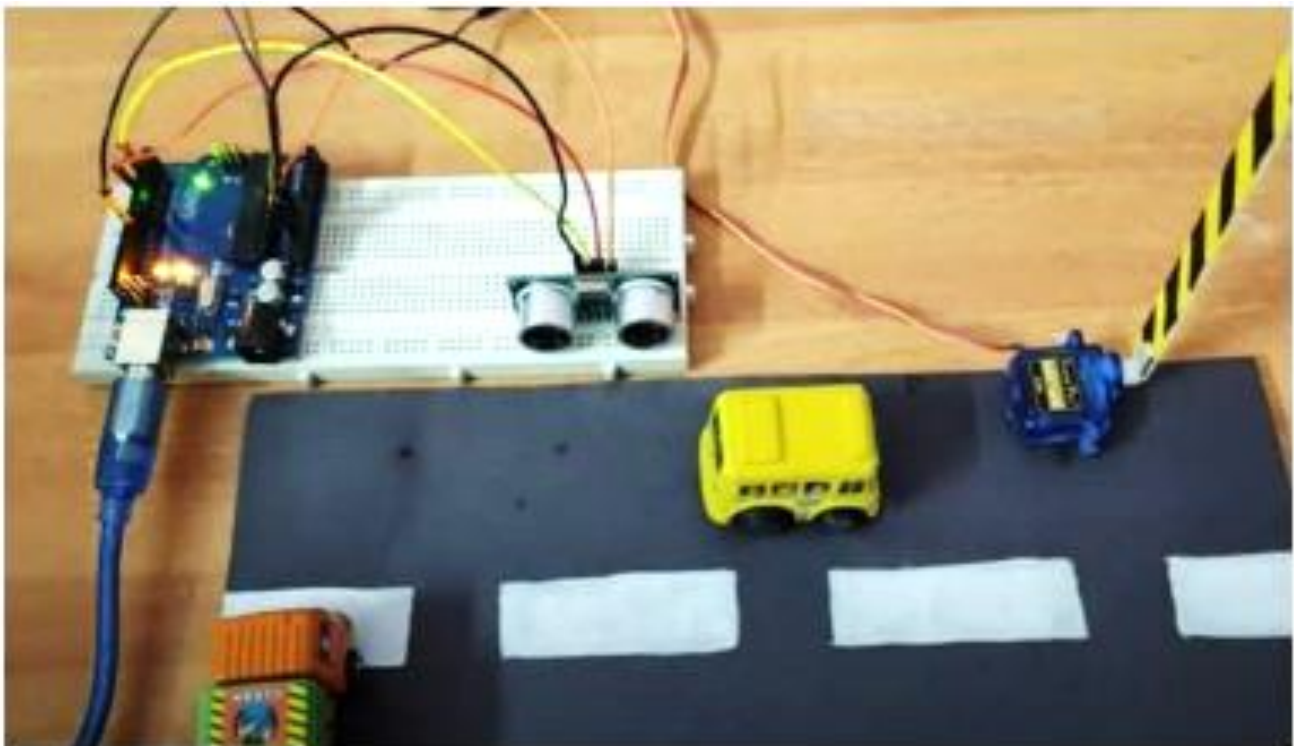
# Our project

## Automatic Toll Collection Gate System



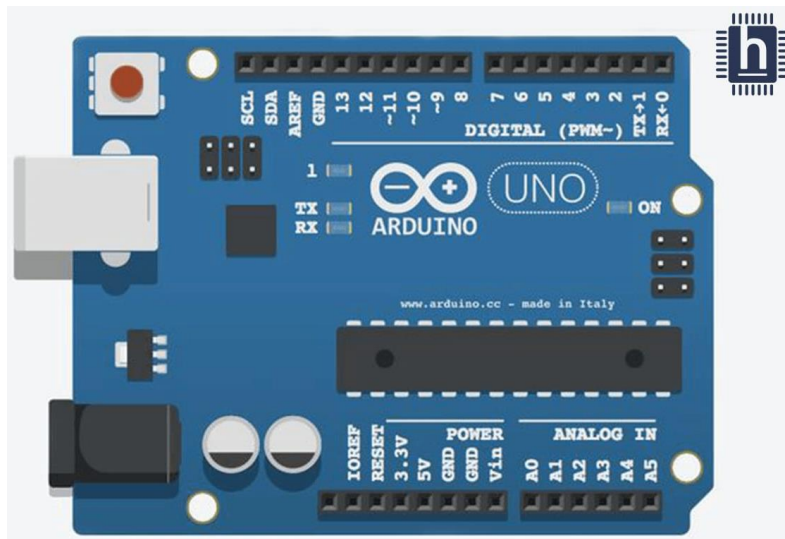
# WHAT IS THE ATCGS?

The Automatic Toll Collection Gate (ATCG) System is a new toll system designed to enhance convenience for drivers cashless toll collection and thus Reducing congestion at High-way tollgates.

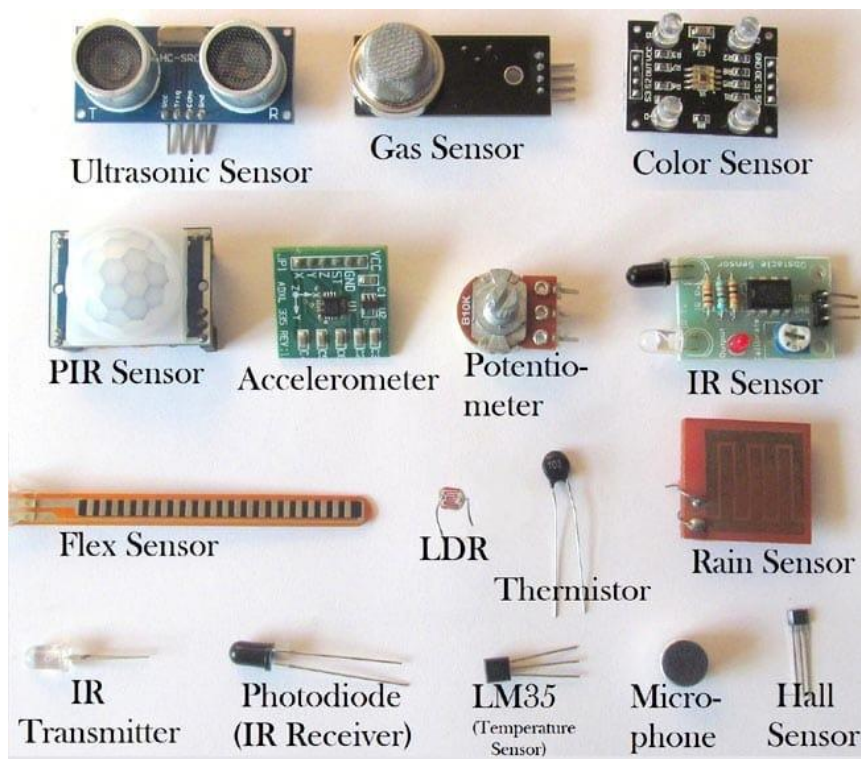


# Arduino Uno:-

Arduino Uno is a microcontroller board based on the ATmega328P. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz ceramic resonator, a USB connection, a power jack, an ICSP header and a reset button.



## Various types of sensor:-

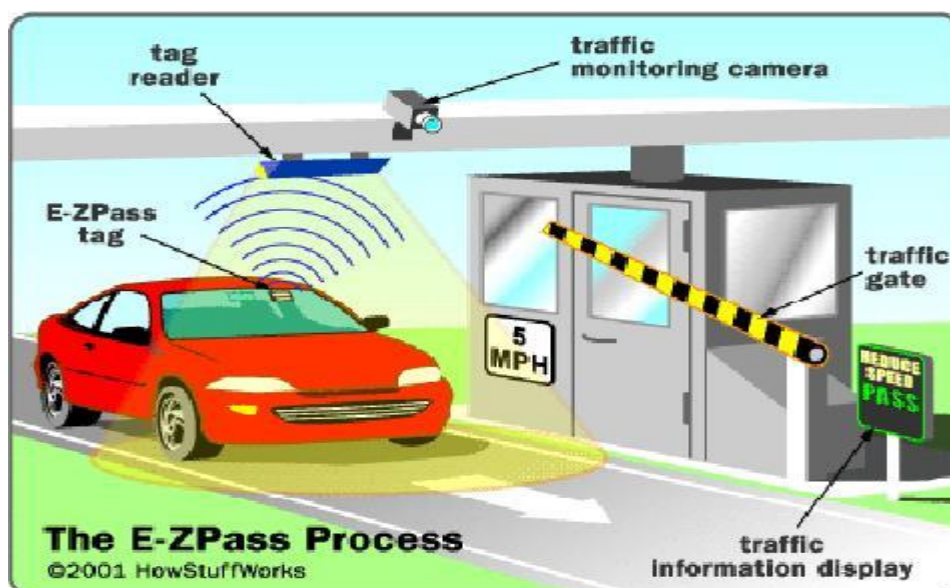


## Working process

The idea for this project was inspired from actual system, in actual toll they stop the vehicles using a stopper that is completely automated and it is activated when any vehicle passes in front the sensor, or some time it's activated through a button.



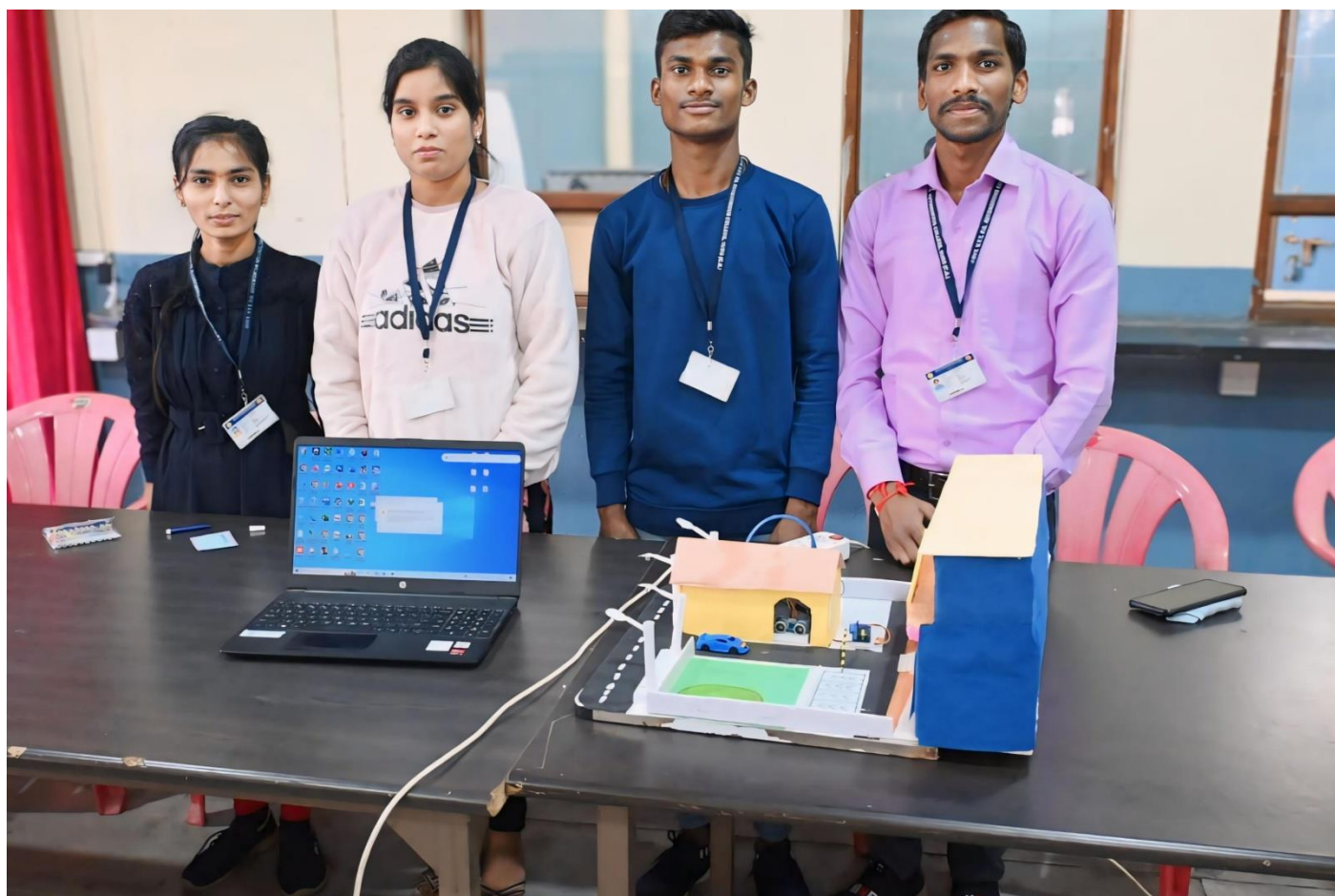
In our case, we are using an HC- SR04 or called as ultrasonic distance sensor to detect an obstacle(vehicle) and later to lift the barrier we are using micro servo, that is the mechanism involved in this project, Now let us dive into the building stage.



# CERTIFICATE DISTRIBUTION DAY



# **PROJECT DEMONSTRATION DAY**



**Feedback:-** I got to learn various ideas of new technology that I had never heard before , like Arduino uno, bread board etc.







# PROJECT REPORT

ON

**“AUTOMATIC ALARMING SYSTEM FOR TRAIN”**

**SUBMITTED TO**

**GOVT. V.Y.T.PG. AUTONOMOUS COLLEGE DURG (C.G.)**



**MASTER OF SCIENCE IN PHYSICS**

**GUIDED BY**

**Dr. Santosh Mishra**

**SUBMITTED BY**

**Triveni koreti**



**Session 2023-2024**

**DEPARTMENT OF PHYSICS**

**GOVT. V.Y.T.PG. AUTONOMOUS COLLEGE DURG (C.G.)**



# BHILAI INSTITUTE OF TECHNOLOGY, DURG

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(SETH BALKRISHAN MEMORIAL)



No. BIT/IDEA LAB/2023/INT/02

Date: 15<sup>th</sup> NOV 2023

## Certificate Of Completion



This is to certify that **TRIVENI KORETI**, 1<sup>st</sup> Semester M.Sc. (Physics), Govt. V.Y.T. Post Graduate Autonomous College, Durg, C.G. has successfully completed her Internship with AICTE IDEA Lab BIT, Durg from October 18<sup>th</sup>, 2023 to November 15<sup>th</sup>, 2023, held at Bhilai Institute of Technology, Durg, C.G.

Best wishes for all future endeavors.

**Dr. Arun Arora**  
Chief Mentor, IDEA Lab  
BIT, Durg (C.G.)

**Dr. Pawan Kumar Patnaik**  
Coordinator, IDEA Lab  
BIT, Durg (C.G.)

## ACKNOWLEDGMENT

In Present day technology can become the “wings” that will allow the educational world to fly further and faster than ever before- if we allow it. Technology has the potential to revolutionize education because they are like two coins of the same side, without which it is impossible to imagine the comprehensive development of any country.

We are incredibly grateful to the principal of **GOVT. V.Y.T.PG. Autonomous college durg**, Dr. M.A. Siddiqui sir who permitted us to attend this internship program at Bhilai institute of technology.

Also, thankful **PM-USHA** for providing fund to us, so that we can able to succeed to making the project.

Furthermore, we would like to express our gratitude to Dr. Jageet kaur Saluja Ma'am “**Head of the Physics Department**”, for providing us with this amazing chance to participate in the internship program.

We express our sincere gratitude to Dr. R.N. Singh Sir, Dr. Anita Shukla Ma'am, Dr. Siddheshwari Chandraker Ma'am, Dr. Abhishek Mishra Sir, Dr. Kusumanjali Deshmukh Ma'am, Mr. Bhupendra Das Sir and Mr. Neeraj Yadav Sir, for your invaluable guidance during our project.

24 students from M.Sc. Previous participated in a group of 4 students for this internship program. We created a total of **6 project** using our creativity and gained a lot of knowledge.

It was a very good time for us to learn something new and innovative, which will help us a lot in making more projects in the future, so that we can also contribute toward achieving the goal of **ViksitBhart@2047**.

## TABLE OF CONTENT

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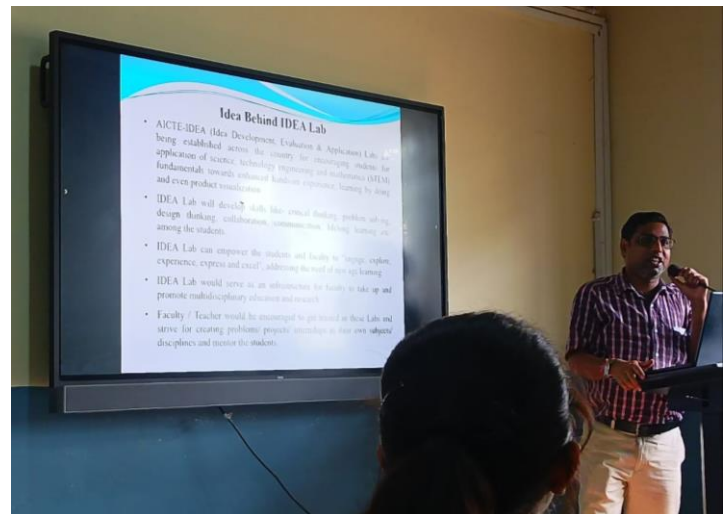
## A BRIEF OVERVIEW OF THE INTERNSHIP PROGRAM

The Bhilai Institute of Technology (BIT) Durg is well-known for its aesthetically pleasing campus, excellent instructors with a wealth of experience, and committed staff.



We all had the wonderful opportunity to participate in an internship program at **IDEA LAB**, which ran from **October 18, 2023, to November 15, 2023.**

Throughout the course of this internship program, we attended numerous technical workshops where we learned about Arduino and LDR and observed a variety of machines, including those that printed cups, t-shirts, laser cut objects, 3D prints, and many other things.



## 3D PRINTER

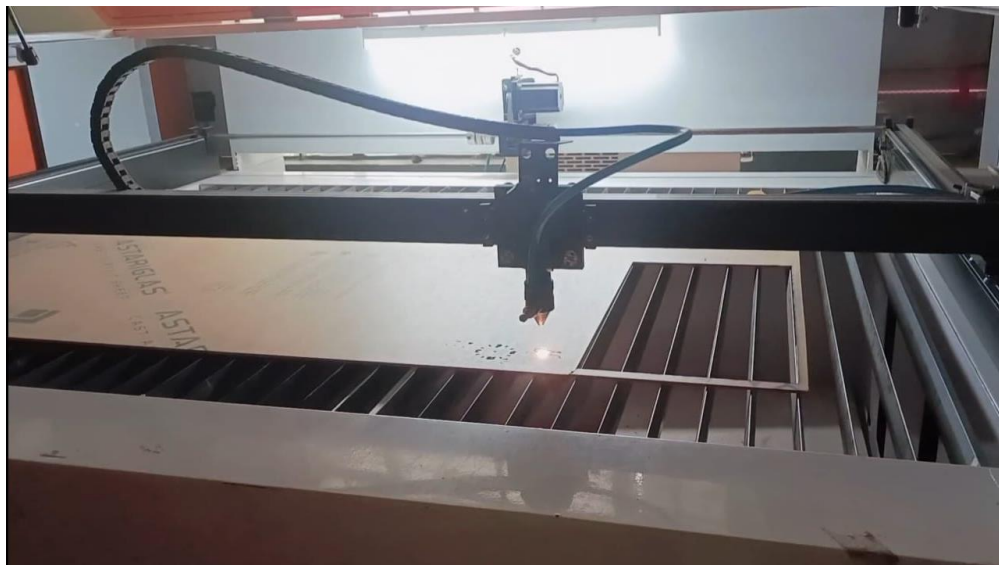
3D printing is a process in which a digital model is turned into a tangible, solid, three-dimensional object, usually by laying down many successive, thin layers of a material. 3D printing has become popular so quickly because it makes manufacturing accessible to more people than ever before.



[3D Printer](#)

## LASER CUTTING MACHINE

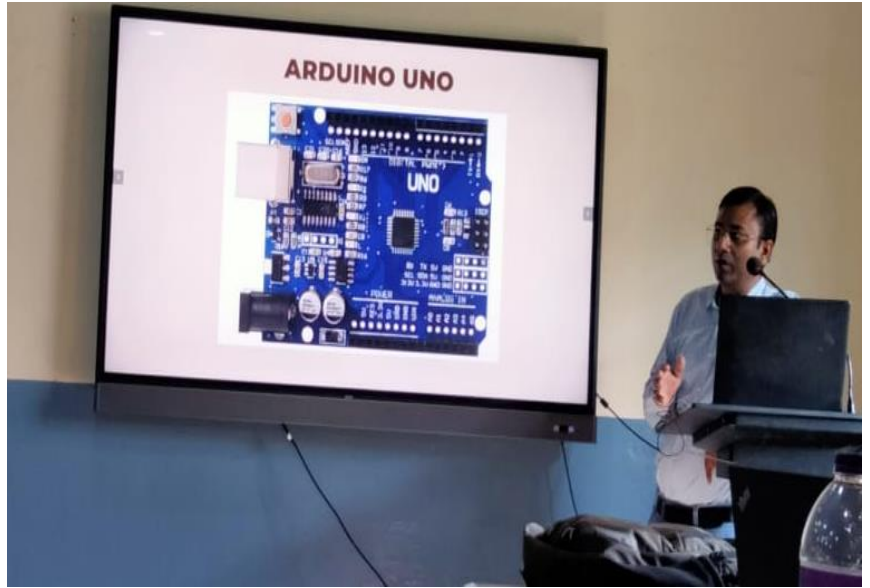
Laser cutting is mainly a thermal process in which a focused laser beam is used to melt material in a localized area. A co-axial gas jet is used to eject the molten material and create a kerf. A continuous cut is produced by moving the laser beam or workpiece under CNC control.



[Laser Cutting Machine](#)

## ARDUINO

The Arduino Uno comes with USB interface, 6 analog input pins, 14 I/O digital ports that are used to connect with external electronic circuits. Out of 14 I/O ports, 6 pins can be used for PWM output. It allows the designers to control and sense the external electronic devices in the real world.



Arduino is an Italian open-source hardware and software company, project, and user community that designs and manufactures single-board microcontrollers and microcontroller kits for building digital devices. Its hardware products are licensed under a CC BY-SA license, while the software is licensed under the GNU Lesser General Public License (LGPL) or the GNU General Public License (GPL), permitting the manufacture of Arduino boards and software distribution by anyone. Arduino boards are available commercially from the official website or through authorized distributors.



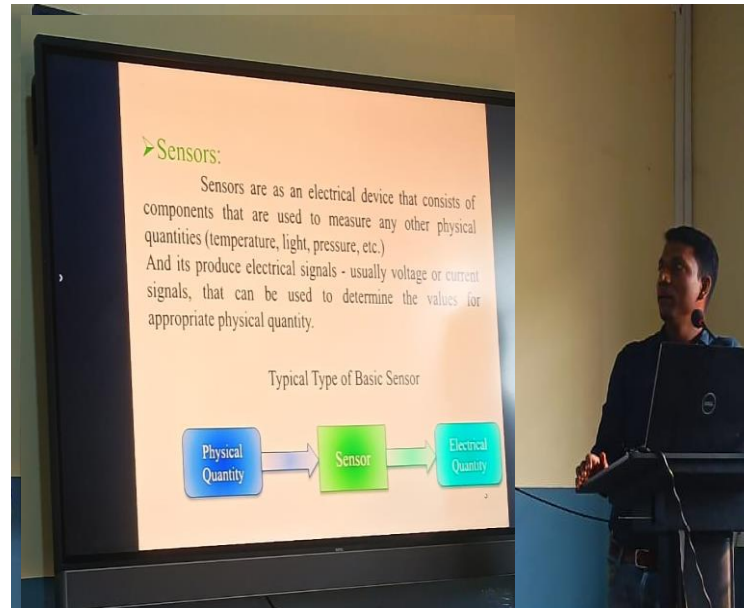
[Arduino Nano](#)



[Arduino Uno](#)

# SENSORS

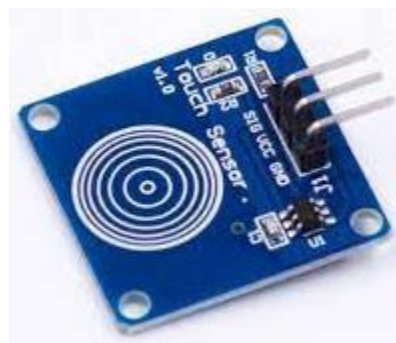
A sensor is a device that detects the change in the environment and responds to some output on the other system. A sensor converts a physical phenomenon into a measurable analog voltage converted into a human -readable display or transmitted for reading or further processing.



One of the best-known sensors is the microphone, which converts sound energy to an electrical signal that can be amplified, transmitted, recorded, and reproduced. Sensors are used in our everyday lives.



[Ultrasonic Sensor](#)



[Touch Sensor](#)

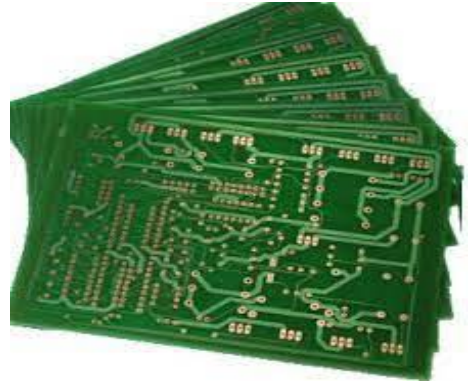


[Color Sensor](#)

## PCB (PRINTED CIRCUIT BOARD)



PCBs are made by isolating the surface copper foil conductive layer through the board base insulation material, which allows current to flow through various components along a pre-designed route.

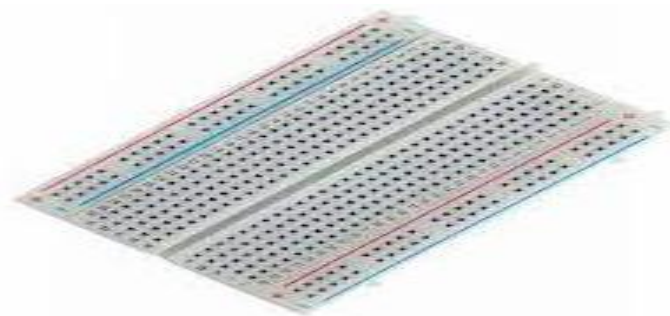


Ultimately achieving functions such as power making, amplification, attenuation, modulation, demodulation, and coding.

PCB (Printed Circuit Board)

## BREAD BOARD

A breadboard (sometimes called a plug block) is used for building temporary circuits. It is useful to designers because it allows components to be removed and replaced easily. It is useful to the person who wants to build a circuit to demonstrate its action, then to reuse the components in another circuit.



Bread Board

## INTRODUCTION

Our Project is design strategy for an Arduino-based safety system to prevent railway accidents. When a train is 500 meters away from an object (a person or an animal), this railway accident prevention safety system commands the person or animal if it is on the track.

In this system, a high-frequency sound wave is transmitted by an ultrasonic sensor, which then waits for the sound to return before calculating the distance based on the required amount of time. In order to alert people to the impending arrival of a train, an ultrasonic sensor works by scanning for and identifying the vehicle.

It then sends a signal to a buzzer to generate an alarm on the railway track. Keywords – Arduino, Ultrasonic Sensor, Buzzer, DC Servomotor, LED Lights. To prevent accidents on the rails, at crossings, etc.

So, the project here is the detection of trains approaching the track. Arduino, an ultrasonic sensor, and a buzzer are used in this.

The train that is approaching the track is detected by this ultrasonic sensor-based technology. The proposed technology locates the train using ultrasonic sensors. A sensor placed between 500 meters or at our discretion can detect the arrival of the train.

## OUR PROJECT (AUTOMATIC ALARMING SYSTEM FOR TRAIN)

Under the direction of pro. Santosh Mishra, LAB Guru at **Idea lab, BIT Durg**, we created a working project on “**Automatic Alarming system for train**” or “**safety system for living beings**” during the internship program.

Avoiding Railroad Accidents, we are presenting A project using an Arduino ultrasonic sensor-based safety system our aim is to avoid accidents on train tracks. We are aware that the country's most popular mode of transit is rail. Accidents are happening more frequently at the railway crossing.



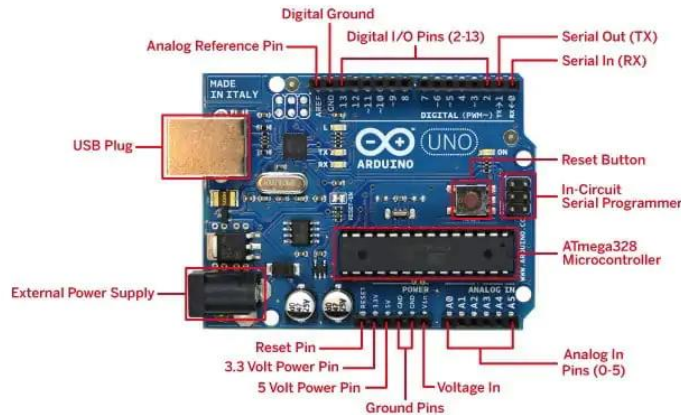
Which can be used in a simple and easy way to reduce the increase in train accidents so that precious human lives and other valuable can be saved.

**The components we use in our project – Arduino uno, ultrasonic sensor, led buzzer etc.**

## ARDUINO UNO

Arduino Uno is a microcontroller board based on the microchip Atmega328P. A Micro controller comprises of an incredible CPU.

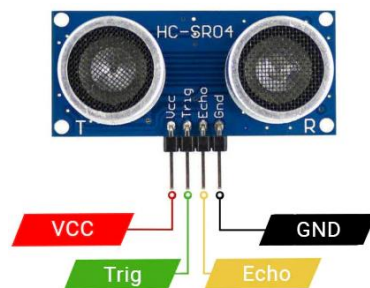
Primarily combined with memory different I/O interfaces, for example, parallel port clock, ADC and DAC coordinates and to a solitary silicon chip.



### Arduino Uno

## ULTRASONIC SENSOR

An ultrasonic Sensor transmits ultrasonic waves into the air and detects reflected waves from an object. There are many applications for ultrasonic sensor such as in instructions alarm systems, automatic door openers and backup sensors for automobile etc.



### Ultrasonic Sensor

## LED (LIGHT EMITTING DIODE)

Light Emitting Diodes (LEDs) are very useful as indicators to show when something is on, LEDs work at low voltage and take very little current which makes them ideal for low power circuits.



LED

## BUZZER

A buzzer or beeper is an audio signaling device. Generally, it is powered through DC voltage and used in timers, alarm devices, printers, alarms, computers, etc.



Buzzer

## WORKING

All the components of the system are connected with the control unit. The power supply supplies the power to the control unit. The ultrasonic sensors are used to detect the obstacles in the train path. Ultrasonic sensors work on a principle similar to sonar which evaluates distance of a target by interpreting the echoes from ultrasonic sound waves.



By employing an Arduino-based safety system to generate an alarm through a buzzer, any obstruction (people) can be alerted and made aware that a train is approaching them at a distance, preventing accidents on the railway track.



A train's location is found and tracked using an ultrasonic sensor. Alarms are generated at the track using buzzers. An ultrasonic sensor was employed as a proximity switch to warn individuals when a train was approaching from a distance of approximately 500 meters away. The ultrasonic sensor automatically blinks a red light and makes a buzzing sound when something blocks it.

## DEMONSTRATION OF OUR PROJECT

&

## CERTIFICATION DAY

Last but not least, the big day arrived. We presented our project to all of the IDEA LAB instructors, including Drs. Santosh Mishra, Anil Kumar, Pro. Kauleshwar Prasad, Anupam Agrwal, Mrs. Suchitra Panday, and Puspendra Singh.



They were really impressed with our work. They gave us motivation and support to carry on with these initiatives and model making.

## HIGHLIGHTS OF OUR INTERNSHIP PROGRAM



## MY FEEDBACK

I gained extremely inexpensive knowledge about how to generate original ideas as a model in this internship programmed.

**A**  
**PROJECT REPORT**  
**ON**  
**INTERNSHIP PROGRAM AT IDEA LAB BIT DURG CHHATTISGARH**  
**SUBMITTED TO**  
**GOVT. V. Y. T. PG. AUTONOMOUS COLLEGE, DURG**



**GUIDED BY:**

**PROF. KAULESHWAR PRASAD**

**SUBMITTED BY:**

**UPASANA DILLIWAR**  
(M.Sc. Previous)

**SESSION 2023 – 24**

**DEPARTMENT OF PHYSICS**

**GOVT. V. Y. T. PG. AUTONOMOUS COLLEGE, DURG (C.G.)**



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(SETHI BALKRISHNAN MEMORIAL)



No. BIT/IDEA LAB/2023/INT/10

Date: 15<sup>th</sup> NOV 2023

### *Certificate Of Completion*



This is to certify that **UPASANA DILLIWAR**, 1<sup>st</sup> Semester M.Sc. (Physics), Govt. V.Y.T. Post Graduate Autonomous College, Durg, C.G., has successfully completed her Internship with AICTE IDEA Lab BIT, Durg from October 18<sup>th</sup>, 2023 to November 15<sup>th</sup>, 2023, held at Bhilai Institute of Technology, Durg, C.G.

Best wishes for all future endeavors.

  
**Dr. Arun Arora**

Chief Mentor, IDEA Lab  
BIT, Durg (C.G.)

  
**Dr. Pawan Kumar Patnaik**

Coordinator, IDEA Lab  
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# **ACKNOWLEDGEMENT**

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We are grateful to the principal of Govt. V.Y.T. PG. Autonomous college, Dr. M. A. Siddiqui who permitted us to attend this internship program.

Also, we are very thankful to PM-USHA for providing us fund so that we could able to attend this internship program.

Along with this we all are very grateful to the Head Department of Physics Dr. Jagjeet Kaur Saluja who gave us a wonderful opportunity to take part in this internship program.

We would like to say special thanks to Dr. Ramashankar Singh, Dr. Anita Shukla, Dr. Sitieshwari Chandraker, Dr. Abhishek Kumar Misra, Dr. Kusumanjali Deshmukh, Mr. Bhupendra Das and Mr. Neeraj Yadav who guided us a lot during our project.

It was our good fortune to make a small contribution to ViksitBharat@2047 through this internship program. We all hope that from time to such internship programs will be organized for us for enhancing our knowledge.

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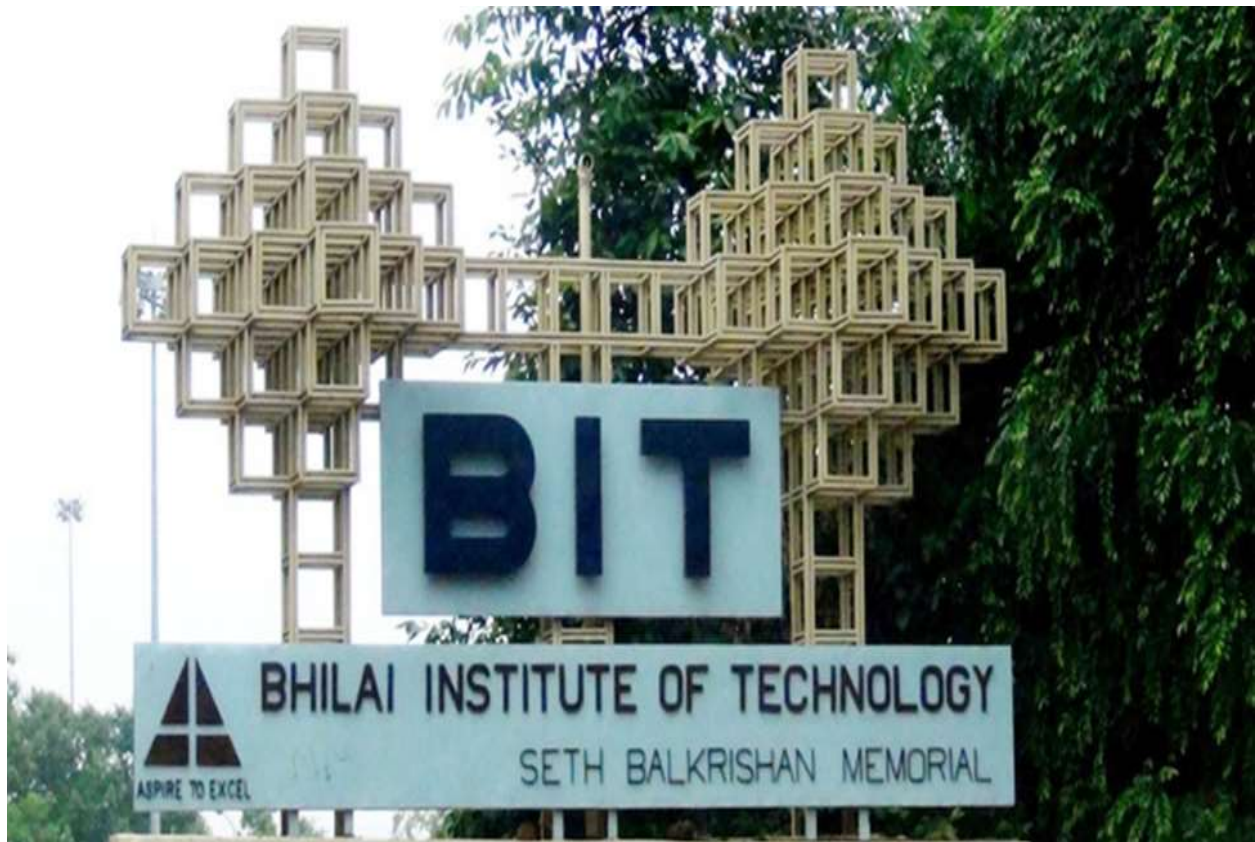
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# **BRIEF DESCRIPTION ABOUT THE** **INTERNSHIP PROGRAM**

Bhilai Institute of Technology Durg, is Renowned for its Environment friendly campus with well – equipped infrastructure, outstanding faculty rich experience, and dedicated staff.

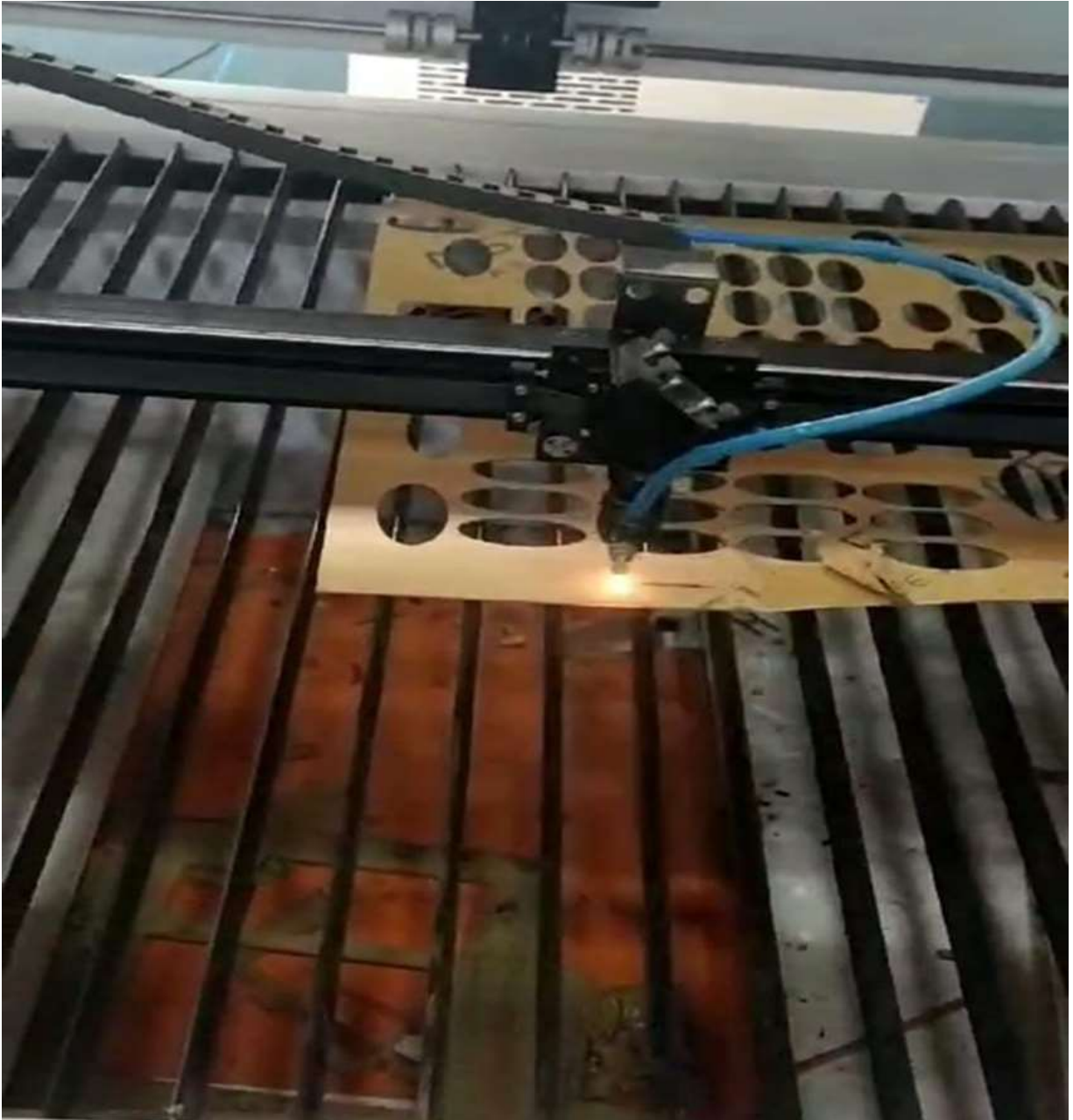
We all got a golden opportunity to attend an “Internship program AT IDEA LAB”, BIT Durg which was from 18th October to 15th November, 2023.

During this internship program, there were many technology sessions through which learnt about Arduino, LDR and we saw different types of Machines like cup printing, t-shirt printing, LASER cutting machine, 3D-printing Machine and many more.



# **WORKING OF LASER CUTTING MACHINE**

LASER Cutting uses a high – power laser which is directed through optics and computer numerical control (CNC) to direct the beam or material. Typically, the process uses a motion control system to follow a CNC or G-CODE of the pattern that is to be cut onto the material.



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# **INTRODUCTION**

Now days the no. of vehicles on road is increasing drastically and no. of accident on road also increases. Especially at night most of the accidents are occurred due to dazzling of headlight. While driving at night the headlight beam of oncoming vehicle is directly effects driver's eyes and eyes gets blur, it takes 3 to 8 sec to recover to its normal vision. Below fig. shows the high beam of headlight which causes blurriness on driver's eyes. If at that time vehicle speed is 70km/h, causes the vehicle goes out of road or strikes on oncoming vehicle.

In every vehicle dipper beam is provided in addition with the upper beam to reduce the dazzle from oncoming vehicle. Automatic dipper light control is a system which automatically changes the headlight from upper to dipper beam by sensing the headlight of oncoming vehicle.



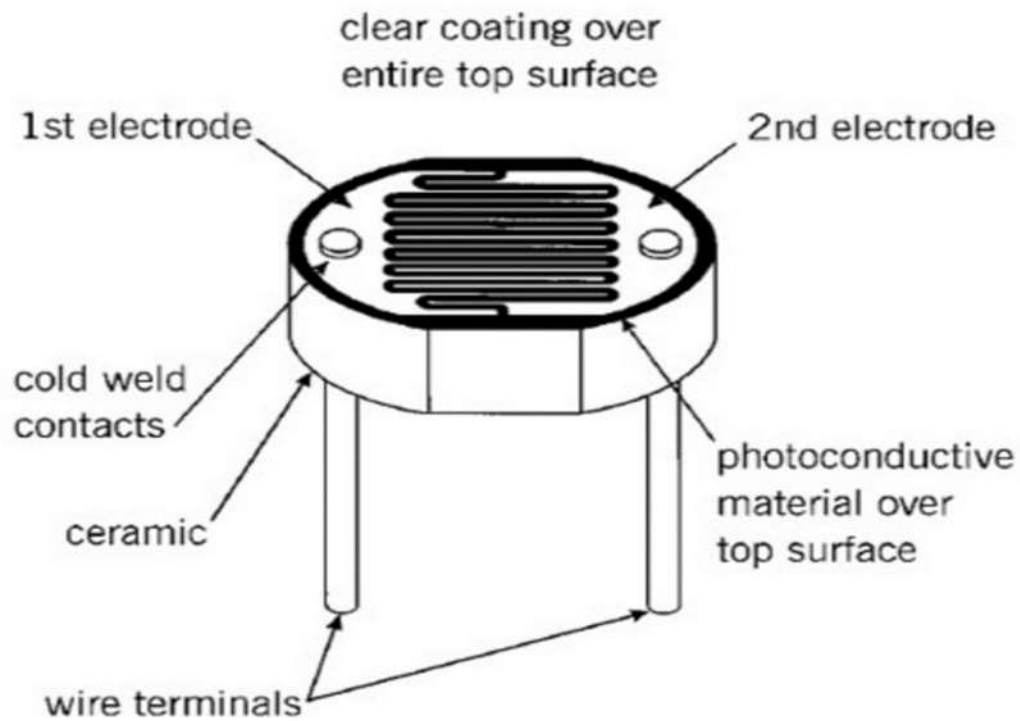
# OUR PROJECT - AUTOMATIC UPPER-DIPPER SYSTEM FOR THE VEHICLES

During Internship program, we made a working model on “Automatic Upper-Dipper system for the vehicles”, under the guidance of Prof. Kauleshwar Prasad, LAB Guru at Idea lab, BIT Durg. This system eliminate need for the driver to manually switch on or switch off the dipper beam inmost driving situations. The automatic Upper-Dipper system reacts like the human eyes to headlight of incoming vehicles and independently turns beam to Dipper when needed.



# **WHAT IS LDR (LIGHT DEPENDENT RESISTOR)**

As the name states is a special type of resistor that work on the photoconductivity principle. In the system LDR is act as sensor to sense the headlight beam of oncoming vehicles.



# WHAT IS RELAY

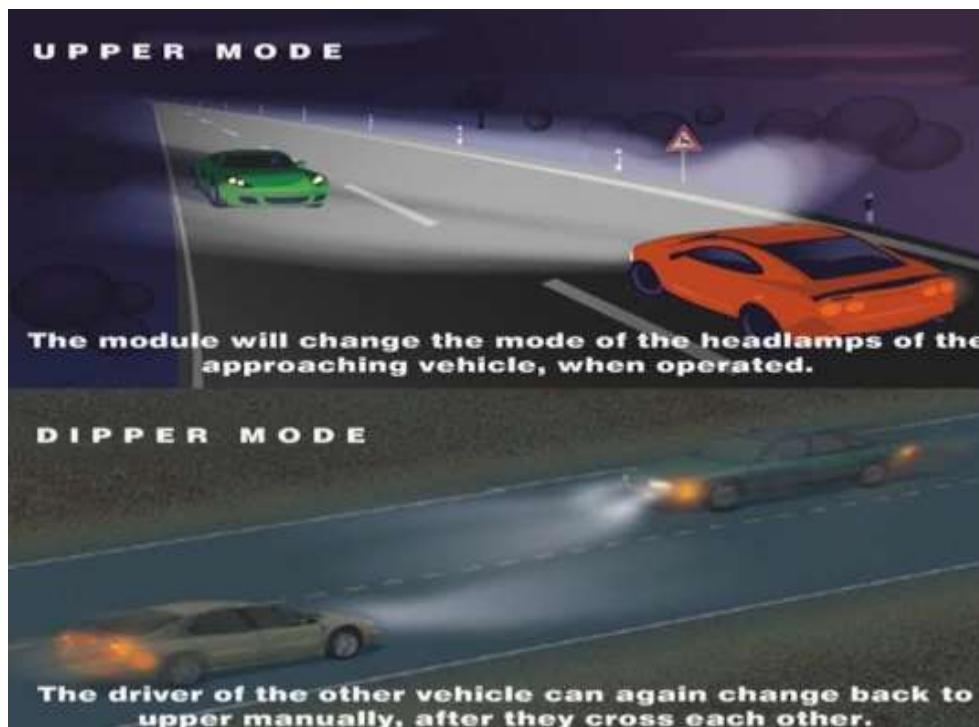
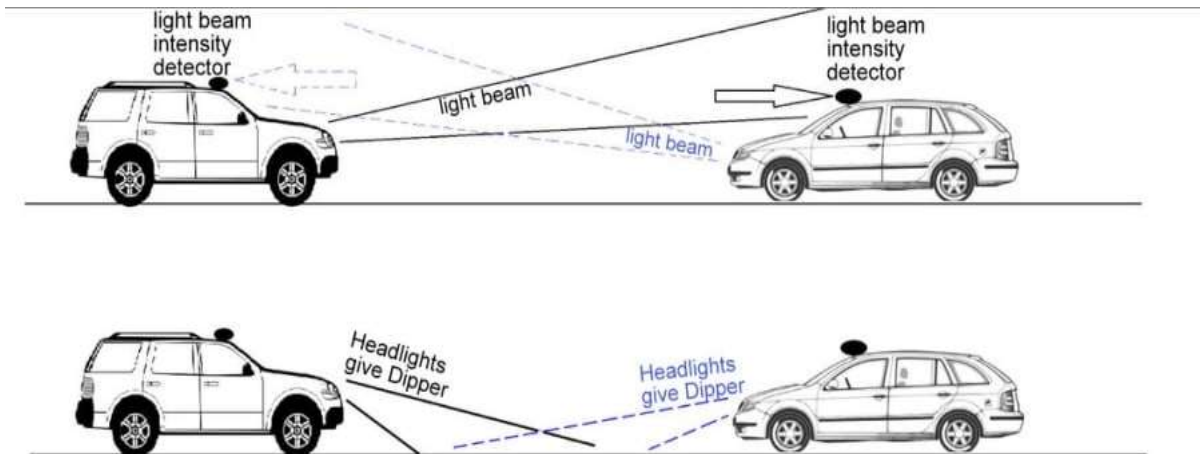
In this system relay is used as switch to change the lamp connections from Upper beam to Dipper beam. Relay is electromagnetic switch which operates when current is flowing through its coil. Connection of Upper beam is given to NC (normally close) terminal, Dipper beam is given to NO (normally open) terminal and common is connected directly connected to power supply.



# WORKING PROCESS OF OUR MODEL

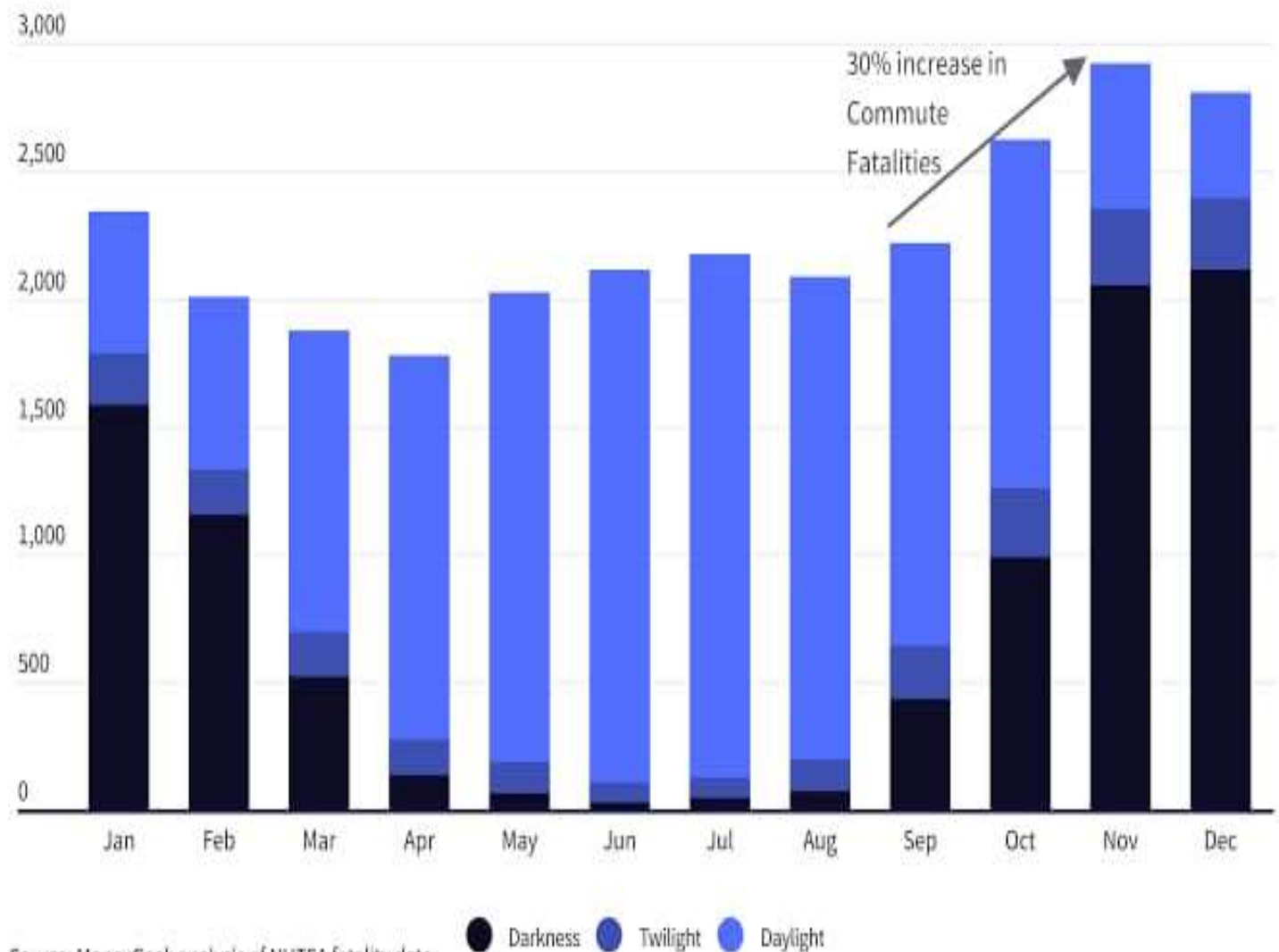
As we all know the Upper-Dipper light in vehicles. It goes up and down with a switch. By using this device, we can automatically up and down the vehicles light.

Like if two vehicles are coming head-on and if one or both of them have kept the light in Upper mode. So, this device was installed in both the vehicles by sensing the lights will convert Upper light into Automatic Dipper light. Due to which the risk of accident can be reduced.



# **RATIO OF THE ACCIDENT IN (2023)**

**Fatal Accidents During Weeknight Commute (4-7 p.m.) by Light Conditions**



## **AIM OF THE PROJECT**

One of the essential safety features that need to be installed is automatic Upper –Dipper control of headlight, this feature can mainly use during night time driving. Human eyes are very sensitive to the light, if eyes suddenly come with the light after darkness, cornea present in eyes gets contract i.e. vision gets blank and require some time to recover the vision. Many time the situation comes when suddenly vehicle approaches from front with headlight in Upper mode causes blindness to the eyes of the driver. During that time vehicles covers some amount of distance, here chance of accident may occur. It is a sheer luck if person goes safely through that situation. To overcome this manual dipping problem, an automatic mechanism has made to dip the headlight automatically whenever situation occurs.

# **DEMONSTRATION OF OUR PROJECT AND CERTIFICATION DAY**

Finally, the day of arrived. We demonstrated our project in front of all teachers of IDEA LAB namely Dr. Santosh Mishra, Dr. Anil Kumar, Prof. Kauleshwar Prasad, Dr. Anupam Agrawal, Prof. Suchitra Pandey and Dr. Puspendra Singh they admired our efforts a lot. They encouraged us and inspired us to continue working on such project and making models.





## SOME HIGHLIGHT OF OUR INTERNSHIP PROGRAM



# **FEEDBACK**

## **UPASANA DILLIWAR**

I had a very good experience in the internship program. I learned a lot for this, I am grateful to Dr. Jagjeet Kaur Saluja.



**A**  
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**GUIDED BY:**

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**SUBMITTED BY:**

**VANDANA SAHU**  
(M.Sc. Previous)

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Along with this we all are very grateful to the Head Department of Physics Dr. Jagjeet Kaur Saluja who gave us a wonderful opportunity to take part in this internship program.

We would like to say special thanks to Dr. Ramashankar Singh, Dr. Anita Shukla, Dr. Sitieshwari Chandraker, Dr. Abhishek Kumar Misra, Dr. Kusumanjali Deshmukh, Mr. Bhupendra Das and Mr. Neeraj Yadav who guided us a lot during our project.

It was our good fortune to make a small contribution to ViksitBharat@2047 through this internship program. We all hope that from time to such internship programs will be organized for us for enhancing our knowledge.

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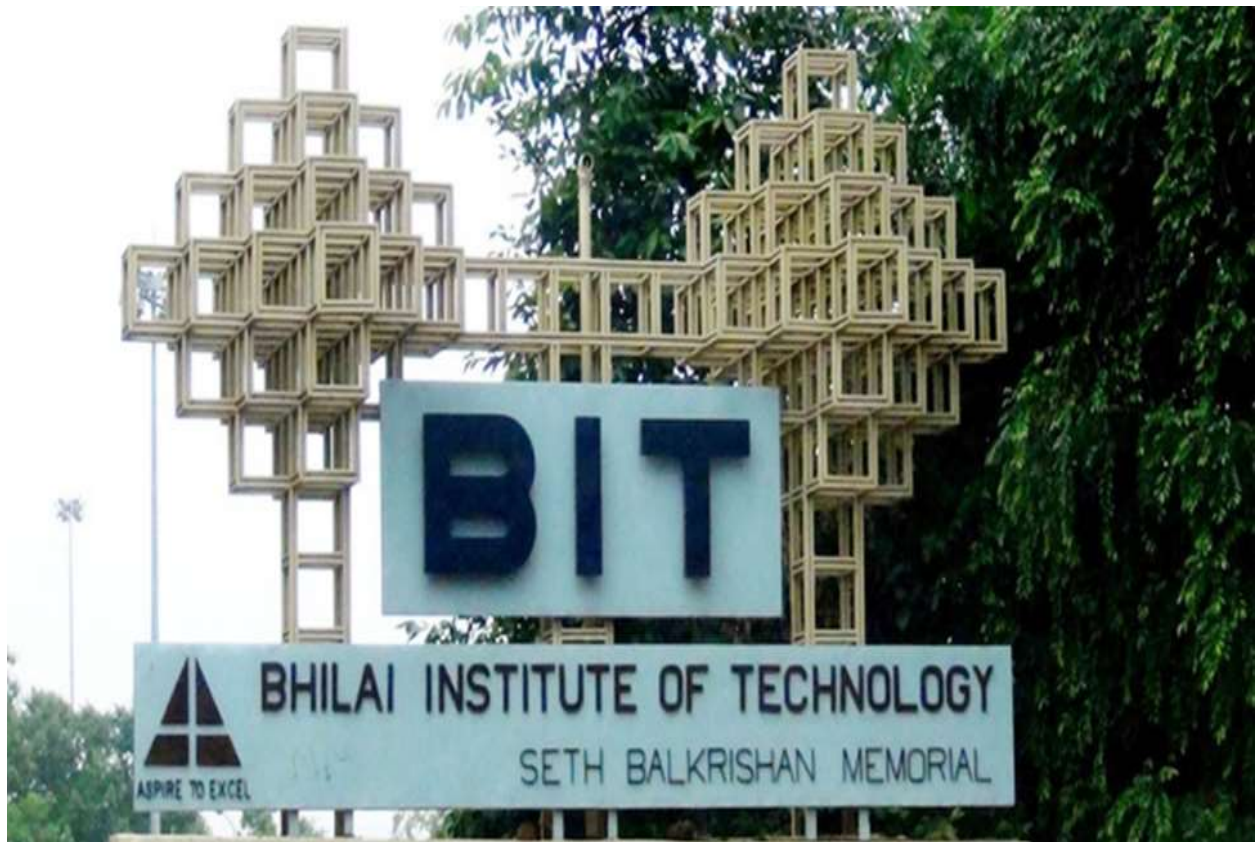
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# **BRIEF DESCRIPTION ABOUT THE** **INTERNSHIP PROGRAM**

Bhilai Institute of Technology Durg, is Renowned for its Environment friendly campus with well – equipped infrastructure, outstanding faculty rich experience, and dedicated staff.

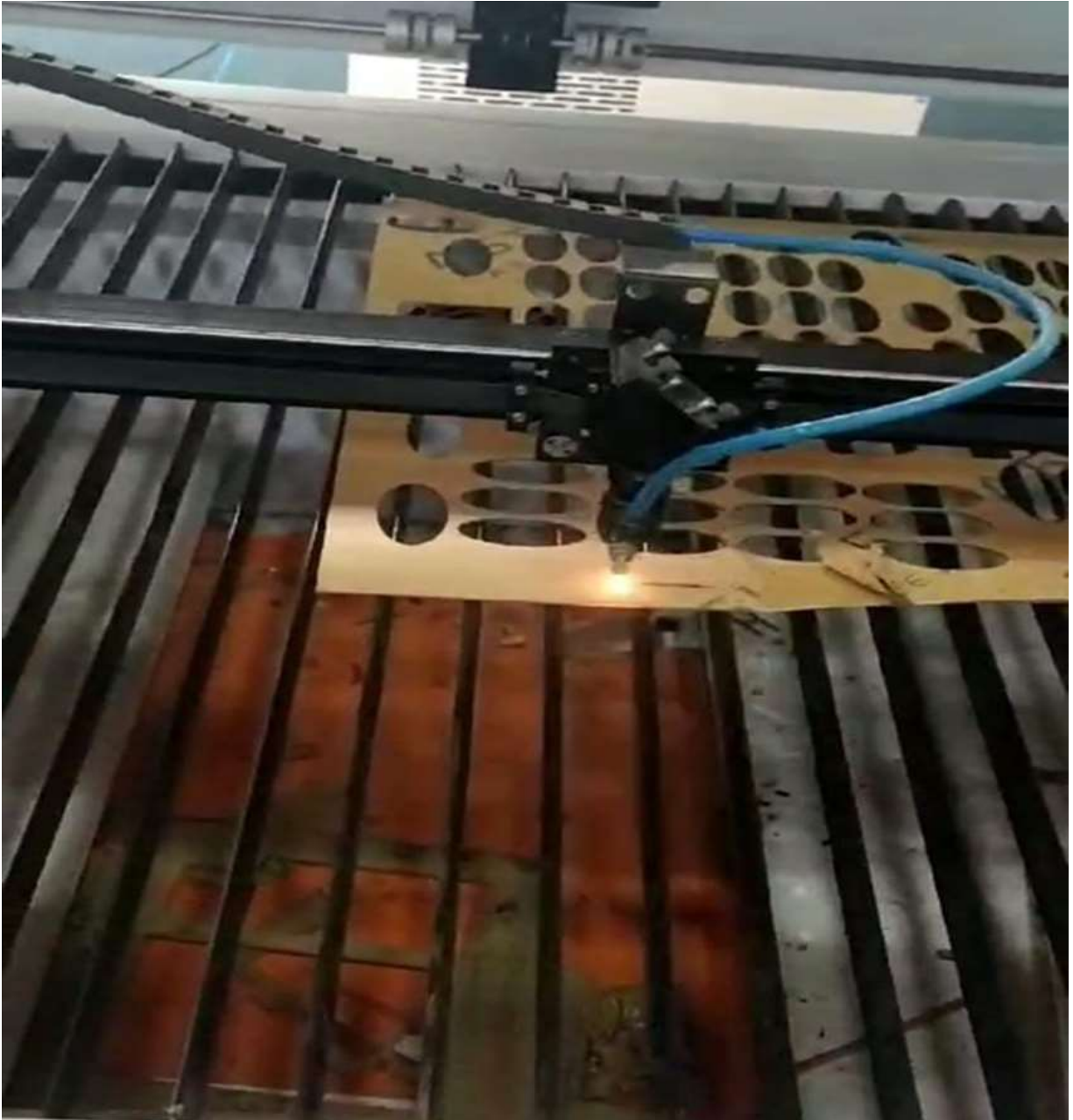
We all got a golden opportunity to attend an “Internship program AT IDEA LAB”, BIT Durg which was from 18th October to 15th November, 2023.

During this internship program, there were many technology sessions through which learnt about Arduino, LDR and we saw different types of Machines like cup printing, t-shirt printing, LASER cutting machine, 3D-printing Machine and many more.



# **WORKING OF LASER CUTTING MACHINE**

LASER Cutting uses a high – power laser which is directed through optics and computer numerical control (CNC) to direct the beam or material. Typically, the process uses a motion control system to follow a CNC or G-CODE of the pattern that is to be cut onto the material.



# **WORKING OF 3D PRINTING MACHINE**

3D printers are related to additive Manufacturing. 3D printers use Computer – aided design to understand a design. When a design is ready, a Material that can be dispensed through a hot nozzle or precision tool is printed layer by layer to create a three- Dimensional Object from Scratch.



# **INTRODUCTION**

Now days the no. of vehicles on road is increasing drastically and no. of accident on road also increases. Especially at night most of the accidents are occurred due to dazzling of headlight. While driving at night the headlight beam of oncoming vehicle is directly effects driver's eyes and eyes gets blur, it takes 3 to 8 sec to recover to its normal vision. Below fig. shows the high beam of headlight which causes blurriness on driver's eyes. If at that time vehicle speed is 70km/h, causes the vehicle goes out of road or strikes on oncoming vehicle.

In every vehicle dipper beam is provided in addition with the upper beam to reduce the dazzle from oncoming vehicle. Automatic dipper light control is a system which automatically changes the headlight from upper to dipper beam by sensing the headlight of oncoming vehicle.



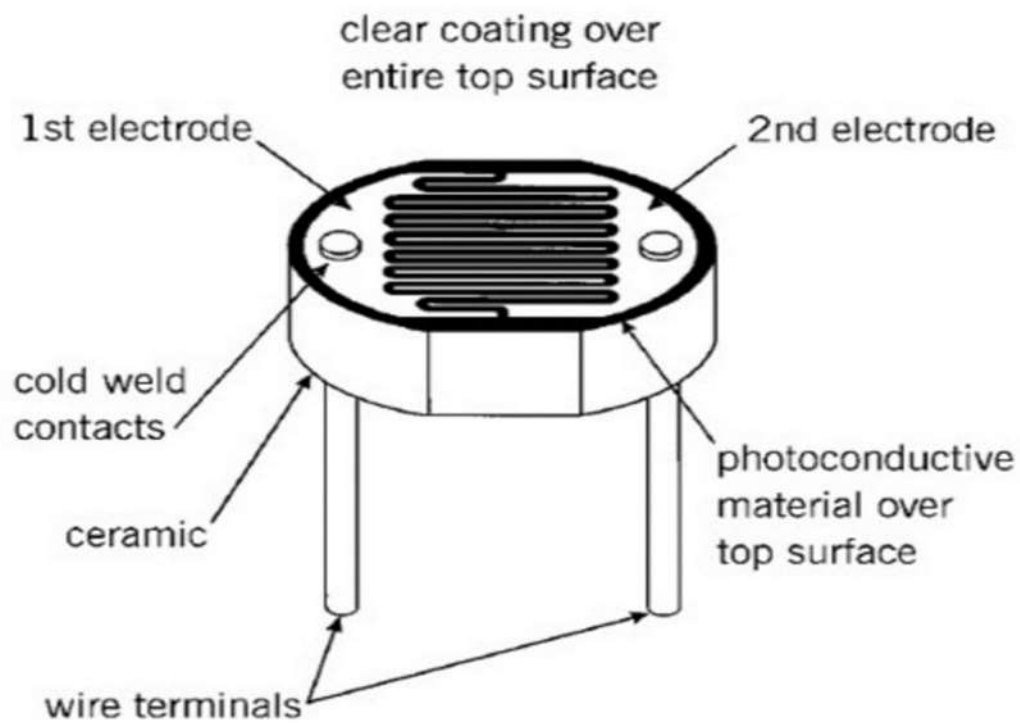
# OUR PROJECT - AUTOMATIC UPPER-DIPPER SYSTEM FOR THE VEHICLES

During Internship program, we made a working model on “Automatic Upper-Dipper system for the vehicles”, under the guidance of Prof. Kauleshwar Prasad, LAB Guru at Idea lab, BIT Durg. This system eliminate need for the driver to manually switch on or switch off the dipper beam inmost driving situations. The automatic Upper-Dipper system reacts like the human eyes to headlight of incoming vehicles and independently turns beam to Dipper when needed.



# **WHAT IS LDR (LIGHT DEPENDENT RESISTOR)**

As the name states is a special type of resistor that work on the photoconductivity principle. In the system LDR is act as sensor to sense the headlight beam of oncoming vehicles.



# WHAT IS RELAY

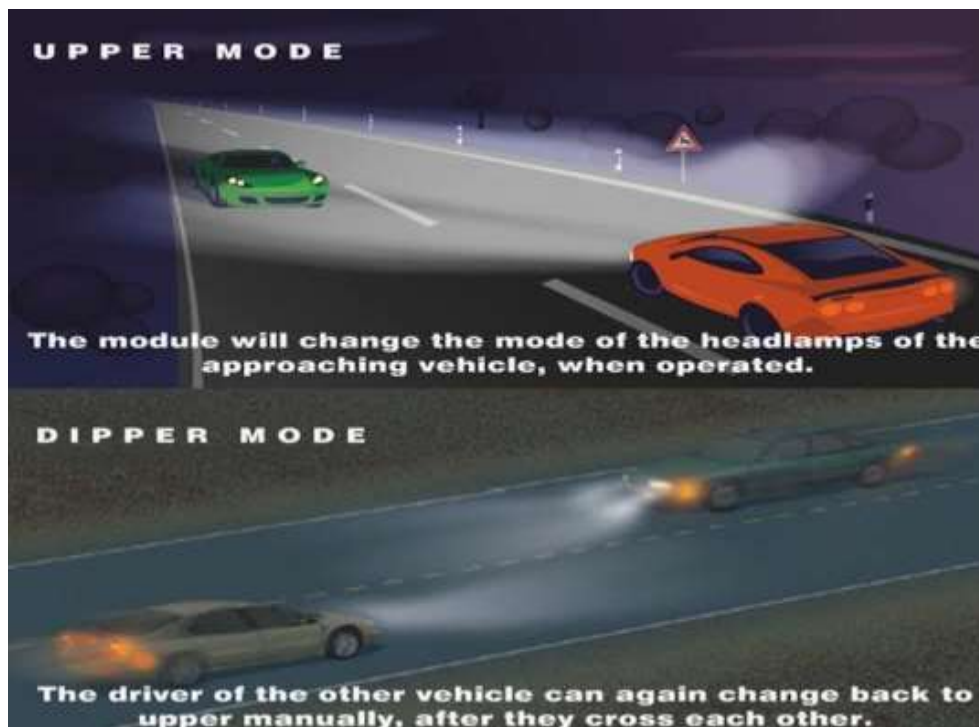
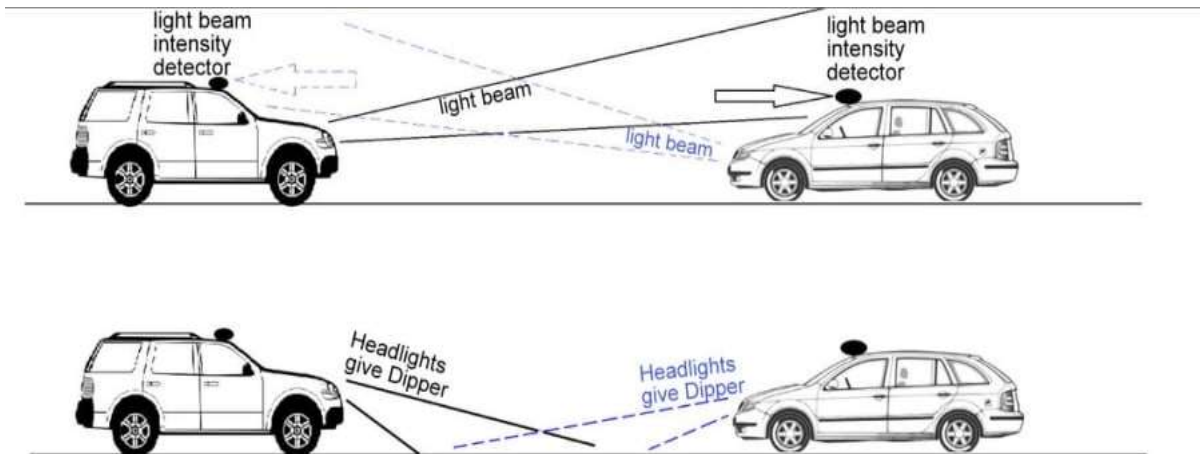
In this system relay is used as switch to change the lamp connections from Upper beam to Dipper beam. Relay is electromagnetic switch which operates when current is flowing through its coil. Connection of Upper beam is given to NC (normally close) terminal, Dipper beam is given to NO (normally open) terminal and common is connected directly connected to power supply.



# WORKING PROCESS OF OUR MODEL

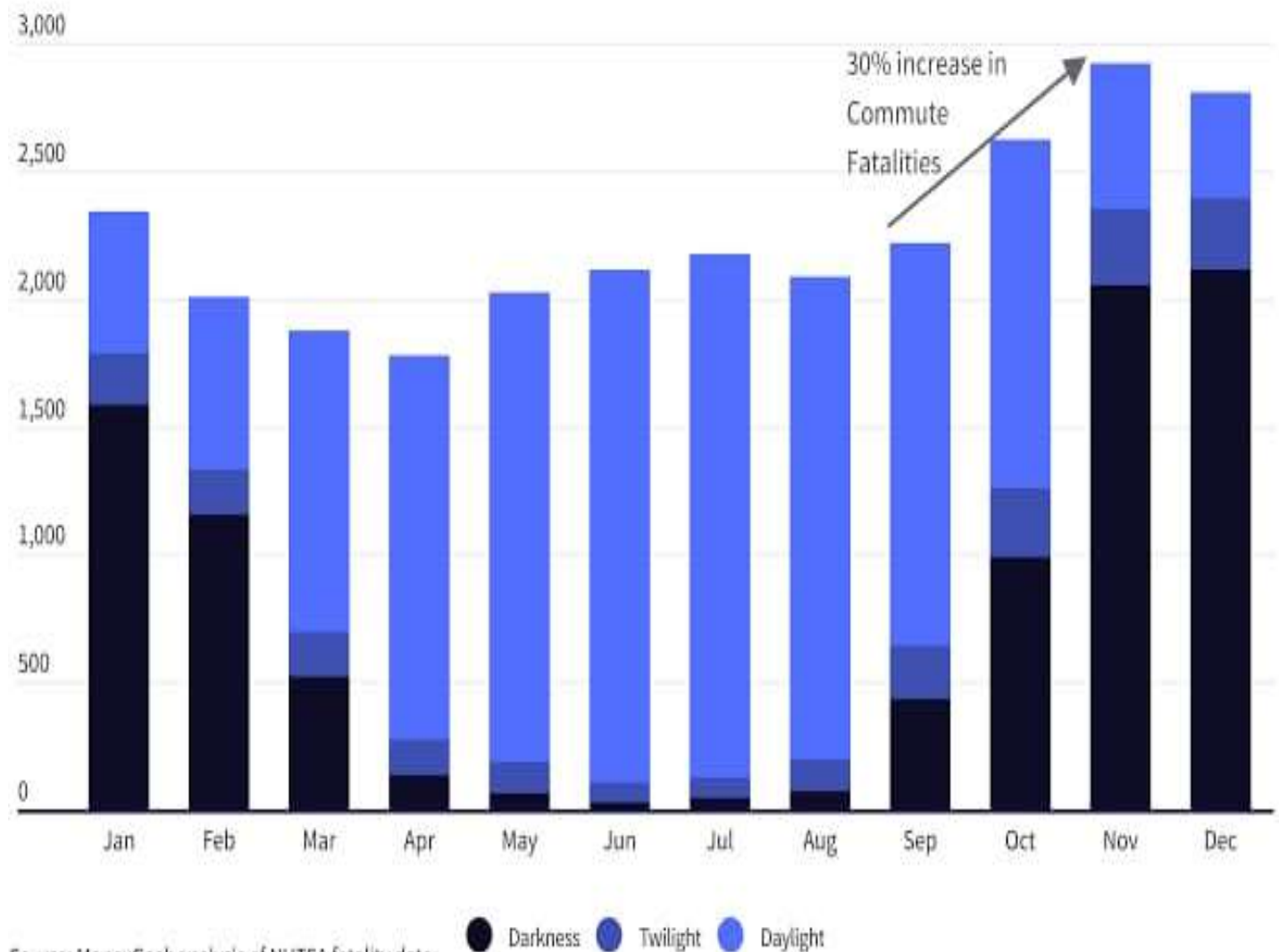
As we all know the Upper-Dipper light in vehicles. It goes up and down with a switch. By using this device, we can automatically up and down the vehicles light.

Like if two vehicles are coming head-on and if one or both of them have kept the light in Upper mode. So, this device was installed in both the vehicles by sensing the lights will convert Upper light into Automatic Dipper light. Due to which the risk of accident can be reduced.



# **RATIO OF THE ACCIDENT IN (2023)**

**Fatal Accidents During Weeknight Commute (4-7 p.m.) by Light Conditions**



## **AIM OF THE PROJECT**

One of the essential safety features that need to be installed is automatic Upper –Dipper control of headlight, this feature can mainly use during night time driving. Human eyes are very sensitive to the light, if eyes suddenly come with the light after darkness, cornea present in eyes gets contract i.e. vision gets blank and require some time to recover the vision. Many time the situation comes when suddenly vehicle approaches from front with headlight in Upper mode causes blindness to the eyes of the driver. During that time vehicles covers some amount of distance, here chance of accident may occur. It is a sheer luck if person goes safely through that situation. To overcome this manual dipping problem, an automatic mechanism has made to dip the headlight automatically whenever situation occurs.

# **DEMONSTRATION OF OUR PROJECT AND CERTIFICATION DAY**

Finally, the day of arrived. We demonstrated our project in front of all teachers of IDEA LAB namely Dr. Santosh Mishra, Dr. Anil Kumar, Prof. Kauleshwar Prasad, Dr. Anupam Agrawal, Prof. Suchitra Pandey and Dr. Puspendra Singh they admired our efforts a lot. They encouraged us and inspired us to continue working on such project and making models.





## SOME HIGHLIGHT OF OUR INTERNSHIP PROGRAM



# **FEEDBACK**

## **VANDANA SAHU**

The best thing I liked was that we were given a visit to the entire IDEA LAB and I saw a lot machines and understood their working.

