



DEPARTMENT OF ELECTRONICS AND COMMUNICATION

EXPLORE, DREAM, DISCOVER

ISSUE 60

MONTHLY NEWSLETTER

FEBRUARY 2023

GENESIS

IGNITING THOUGHTS

Contents

Departmental Activities-	01
Placements-	03
Awards and recognitions-	06
Toppers	-09
Tech Talk	- 13
Achievements-	20



Vision

- To be recognized at the national and international level for excellence in education and research in Electronics and Communication Engineering.

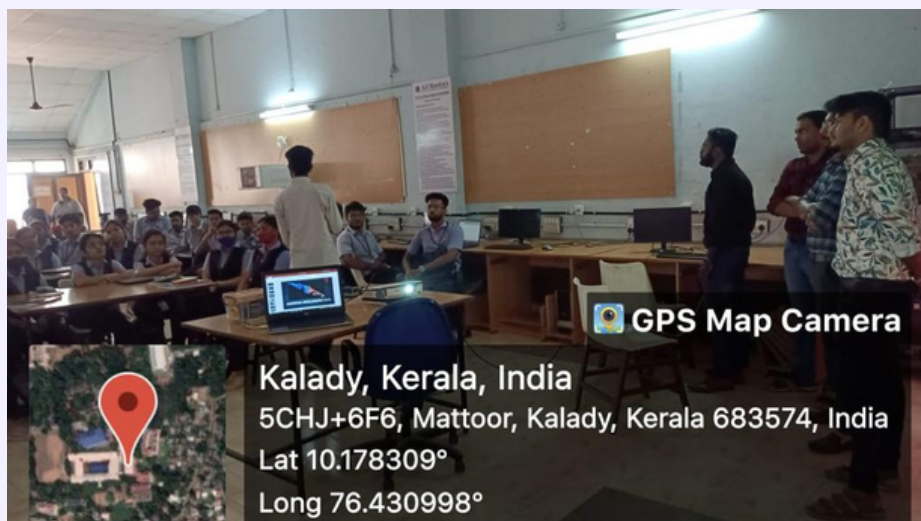
Mission

- Inculcating leadership qualities, adaptability, and ethical values
- Imparting quality education in the field of electronics, communication, and related areas to meet the challenges in the industry, academia, and research
- Nurture the growth of each individual by providing a dynamic and conducive learning environment.

DEPARTMENTAL ACTIVITIES

HANDS ON WORKSHOP ON RASPBERRY PI AND ARDUINO

The Electronics and Communication Engineering department in association with ACES organized a "HANDS ON WORKSHOP ON RASPBERRY PI AND ARDUINO" for the students of S6 ECE from 14/02/23 to 20/02/23. The workshop was conducted by resource persons from Aster India, Pvt Ltd. The sessions were highly beneficial as the students familiarized themselves with Raspberry Pi and Arduino. This helps them for the coming academics, as the workshop typically involves hands-on activities, which can help students learn by doing. Also, it helps the students understand the basics, explore their creativity, and develop new ideas for projects.



MY STORY- AN INTERACTIVE TALK SESSION

"My Story" was a talk organized by the EC Department in association with the institution's Innovative Council on February 23, 2023. The session was attended by final-year students of the EC Department. The talk started at 1:00 p.m. The resource person for the day was Harikrishnan M, founder and CTO at MACHBEE. The session began with a brief introduction to the topic. The speaker provided important insights on entrepreneurship. The talk was incredibly educational and intimate, giving the students an opportunity to interact with a real person going through real challenges. During the interactive session, students participated in a variety of activities. As the hour-long interactive session concluded, a souvenir was presented to the speaker as a token of appreciation and gratitude.



PLACEMENTS



Amrutha P.P
Jobin and Jismi



Atulya G Nair
Sutherland



Arya Shivan
Sutherland



Devikalekshmi J Shenoi
Sutherland



D Keerthana Prasad
Sutherland,
Nebula Clod



Dominic Davis
Nebula Cloud



Abirami K.A
Nebula Cloud



Govind R
Nebula Cloud



Aravind Sreedhar
Nebula Cloud

PLACEMENTS



Viswesh Parameswaran
Intellipaat



Nirmal V Babu
Intellipaat



Mohit Manoj
Intellipaat



Sinu Damodaran
Intellipaat



Nima T A
Nebula Cloud



Joyal Joy
Nebula Cloud

PLACEMENTS



Sidharth A J
Nebula Cloud



Rahul V R
Nebula Cloud



Hrithika S Pai
Federal Bank



Sangeetha Prasad
Nebula Cloud

AWARDS AND RECOGNITIONS

Funding received for project from KTU

Very happy to inform you all that the project proposal submitted to KTU Research Seed Money (RSM) scheme 2022 by Dr. Gopakumar is selected with funding of *Rs90,000/- (Ninety Thousand Only)*

The Project Title is : *Low-Cost Fiberless Optical Communication Links for Online Teaching & Learning and Work from Home/Remote and Telemedicine at Thinly Populated/Inaccessible Areas and to Re-establish Quick Communication Links at Disaster Affected Locations in the State of Kerala*



Dr. VT Gopakumar
Professor, Department of ECE

Paper Publication

The paper "A Secured framework against DDOS attack in wireless networks" authored by Vismaya, Dr. Ajay Kumar, Arya Paul, and Albins Paul is published in Springer "Intelligent Cyber-Physical Systems and Internet of Things" 2022. Engineering Cyber-Physical Systems and Critical Infrastructures, vol 3. Springer, Cham. https://doi.org/10.1007/978-3-031-18497-0_55

AWARDS AND RECOGNITIONS

Congratulations to the following groups for getting their projects selected for presentation for CERD SPS Funding.

1. Implementation of 2 -way interactive digital notice board.

Students:

Abhirami KB

Gopika Rajeev

Devikalekshmi J Shenoi

D Keerthana Prasad

Principal investigator: Dr. Ajay Kumar,

Co-investigator:Albins Paul

2. SKY FARM-UAV for Agriculture

Students :

Hridhya Babu

Maneesha Moncy

Mehanas Latheef

P S Indraja

Principal investigator: Divya V Chandran

3. STUDENT SAFETY ENSURING SYSTEM USING AI

Students:

Cibin Raj N

Abhijith Surendran

Devadatt PG

Dominic Davis

Principal Investigator: Aswathy N,

. Co Investigator investigator:Anju George.

AWARDS AND RECOGNITIONS



Hearty congrats on becoming the Media Manager of IEEE PIE Kerala Section and being appointed as a Committee Member for the IEEE Bombay Section Membership Development Committee. Your dedication and leadership have led to this impressive achievement, and we are truly proud of you.

TOPPERS

Congratulations to the following students of 2019-23 batch ECE, for achieving an SGPA above 8 in the S-6 KTU University Exam 2021-22.



Abhirami Muralidharan
SGPA 8.9



Katharin P Jose
SGPA 8.67



Sona Paul
SGPA 8.17

TOPPERS

Congratulations to the following students of 2020-24 batch ECE, for achieving an SGPA above 8 in the S-4 KTU University Exam 2021-22.



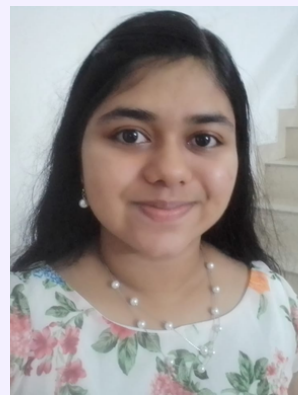
Liya Sam
SGPA 9



Avin Sony
SGPA 9



Gaea Titus E
SGPA 8.77



Sereen Sabu
SGPA 8.59



Malavika S Menon
SGPA 8.36



Adithya Krishna
SGPA 8.3

TOPPERS

Congratulations to the following students of 2021-25 batch ECE, for achieving an SGPA above 8 in the S-4 KTU University Exam 2021-22.



Aneesa Salim
SGPA 9.62



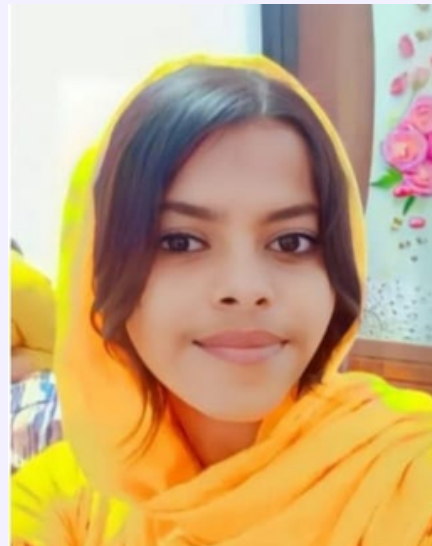
Archana A
SGPA 9.21



Adithya C A
SGPA 9.21



Sreyas Kumar CV
SGPA 8.45



Aslaha Farha
SGPA 8.1



keerthi Krishna S
SGPA 8.05



Alfiya MS
SGPA 8.02

STAFF ZONE



BIOSENSORS

Anjana S , Assistant Professor
ECE DEPT.

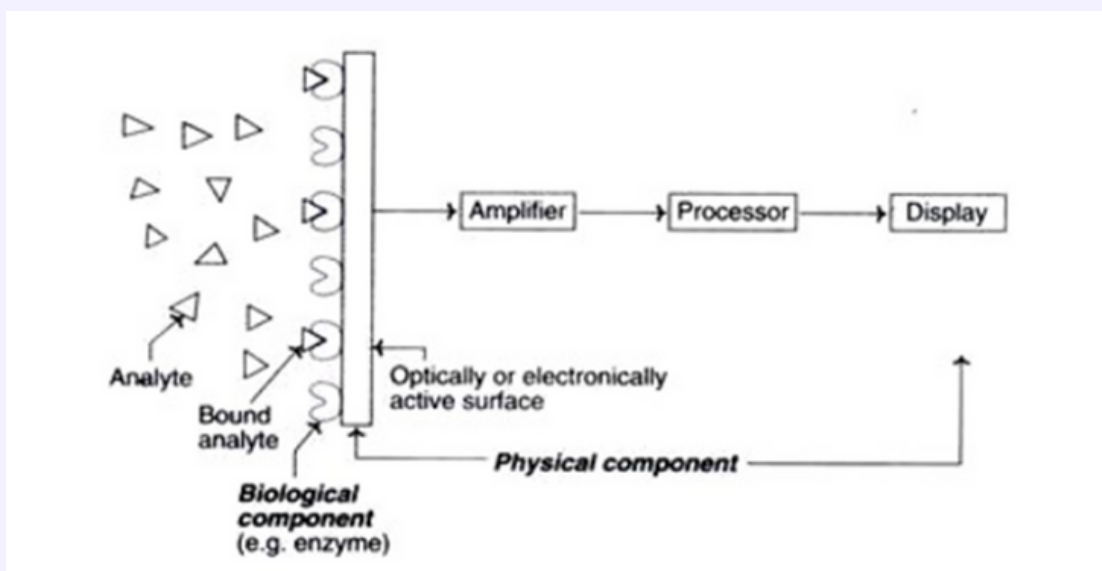
A biosensor is an analytical device containing an immobilized biological material (enzyme, antibody, nucleic acid, hormone, organelle or whole cell) which can specifically interact with an analyte and produce physical, chemical or electrical signals that can be measured. An analyte is a compound (e.g. glucose, urea, drug, pesticide) whose concentration has to be measured.

Biosensors basically involve the quantitative analysis of various substances by converting their biological actions into measurable signals. A great majority of biosensors have immobilized enzymes. The performance of the biosensors is mostly dependent on the specificity and sensitivity of the biological reaction, besides the stability of the enzyme.

General Features of Biosensors:

A biosensor has two distinct components

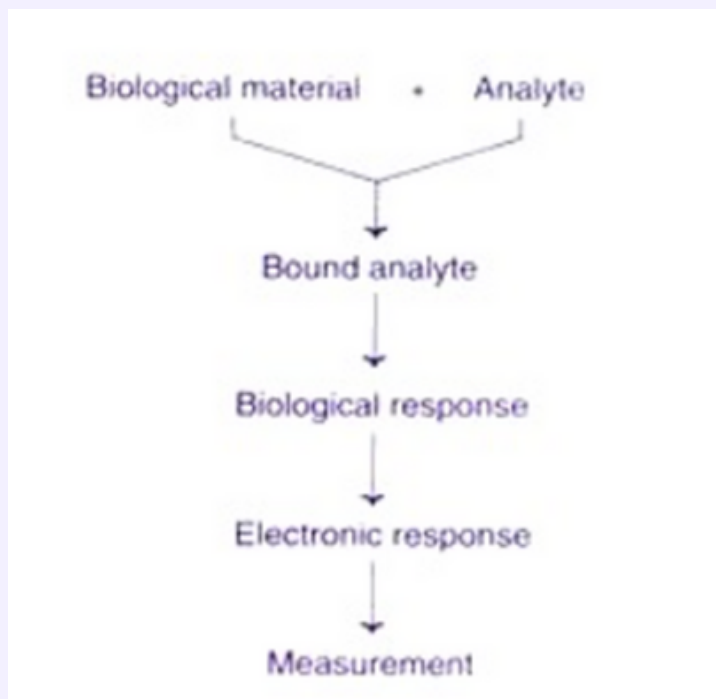
1. Biological component—enzyme, cell etc.
2. Physical component—transducer, amplifier etc.



The biological component recognises and interacts with the analyte to produce a physical change (a signal) that can be detected, by the transducer. In practice, the biological material is appropriately immobilized on to the transducer and the so prepared biosensors can be repeatedly used several times (may be around 10,000 times) for a long period (many months).

Principle of a Biosensor:

The desired biological material (usually a specific enzyme) is immobilized by conventional methods (physical or membrane entrapment, non- covalent or covalent binding). This immobilized biological material is in intimate contact with the transducer. The analyte binds to the biological material to form a bound analyte which in turn produces the electronic response that can be measure.



In some instances, the analyte is converted to a product which may be associated with the release of heat, gas (oxygen), electrons or hydrogen ions. The transducer can convert the product linked changes into electrical signals which can be amplified and measured.

Types of Biosensors:

There are several types of biosensors based on the sensor devices and the type of biological materials used.

Electrochemical Biosensors:

Electrochemical biosensors are simple devices based on the measurements of electric current, ionic or conductance changes carried out by bio electrodes.

Amperometric Biosensors:

These biosensors are based on the movement of electrons (i.e. determination of electric current) as a result of enzyme-catalysed redox reactions. Normally, a constant voltage passes between the electrodes which can be determined. In an enzymatic reaction that occurs, the substrate or product can transfer an electron with the electrode surface to be oxidised or reduced

Optical Biosensors:

Optical biosensors are the devices that utilize the principle of optical measurements (absorbance, fluorescence, chemiluminescence etc.). They employ the use of fibre optics and optoelectronic transducers. The word optrode, representing a condensation of the words optical and electrode is commonly used. Optical biosensors primarily involve enzymes and antibodies as the transducing elements.

Optical biosensors allow a safe non-electrical remote sensing of materials. Another advantage is that these biosensors usually do not require reference sensors, as the comparative signal can be generated using the same source of light as the sampling sensor

Luminescent biosensors to detect urinary infections:

The microorganisms in the urine, causing urinary tract infections, can be detected by employing luminescent biosensors. For this purpose, the immobilized (or even free) enzyme namely luciferase is used. The microorganisms, on lysis release ATP which can be detected by the following reaction. The quantity of light output can be measured by electronic devices.

Applications of Biosensors

1. Applications in Medicine and Health:

Biosensors are successfully used for the quantitative estimation of several biologically important substances in body fluids e.g. glucose, cholesterol, urea. Glucose biosensor is a boon for diabetic patients for regular monitoring of blood glucose. Blood gas monitoring for pH, pCO₂ and pO₂ is carried out during critical care and surgical monitoring of patients. Mutagenicity of several chemicals can be determined by using biosensors. Several toxic compounds produced in the body can also be detected.

2. Applications in Industry:

Biosensors can be used for monitoring of fermentation products and estimation of various ions. Thus, biosensors help for improving the fermentation conditions for a better yield. Now a days, biosensors are employed to measure the odour and freshness of foods. For instance, freshness of stored fish can be detected by ATPase. ATP is not found in spoiled fish and this can be detected by using ATPase. One pharmaceutical company has developed immobilized cholesterol oxidase system for measurement of cholesterol concentration in foods (e.g. butter).

3. Applications in Pollution Control:

Biosensors are very helpful to monitor environmental (air, water) pollution. The concentrations of pesticides and the biological oxygen demand (BOD) can be measured by biosensors. Several environmental pollutants can be evaluated for their mutagenicity by employing biosensors.

4. Applications in Military:

Biosensors have been developed to detect the toxic gases and other chemical agents used during war.

STUDENT ZONE



ChatGPT: The temptation to use artificial intelligence in academic work in higher education.

Sreeram K S
S6 EC B

ChatGPT is a language model that has revolutionized natural language processing. It is a machine learning based system that can generate human-like text in response to a given prompt. It was developed by OpenAI, one of the leading artificial intelligence research organizations in the world.

ChatGPT is based on a deep learning algorithm trained on a huge text dataset. The dataset includes everything from books and articles to social media and online forums.



OpenAI Logo

The model was trained using a technique called unsupervised learning, meaning was given no specific instructions to generate the text. Instead, it learned to generate text by analyzing patterns in the data set.

The first version of ChatGPT, released in 2019, had 117 million parameters. It was a significant improvement over previous language models, but its features were still limited. However, the second version of ChatGPT released in 2020 had 1.5 billion parameters, making it one of the largest and most powerful language models ever.

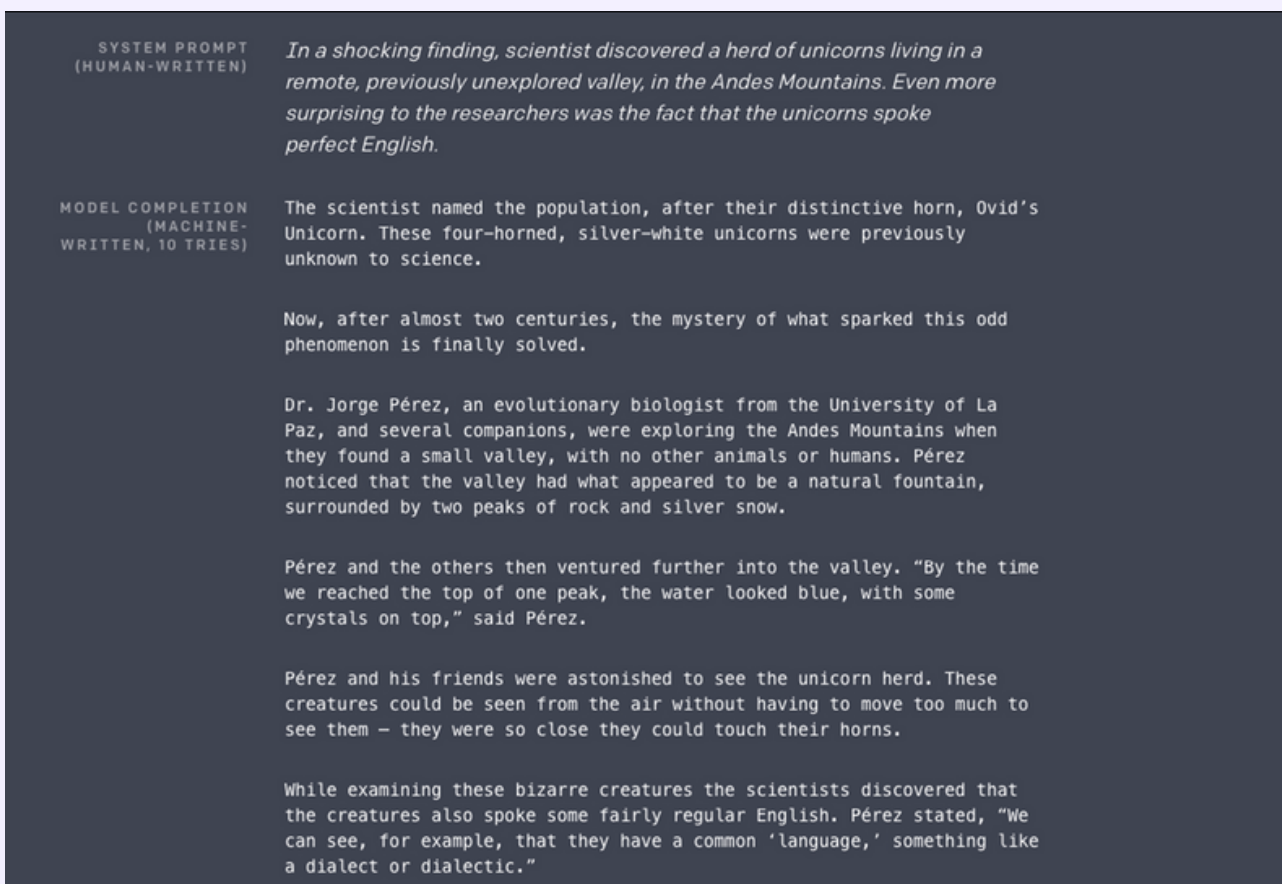
ChatGPT has many applications in various fields, including customer service, content creation and even mental health. However, it has become a popular tool among students to do academic work. While ChatGPT can be a useful research and writing tool, its misuse can lead to plagiarism and academic dishonesty.

One of the main problems with ChatGPT is that the text it generates is often indistinguishable from text written by humans. Even trained professionals may not be able to tell whether the writing was created by artificial intelligence or written by a human. This makes it easy for students to be tempted to use ChatGPT for their assignments, especially when deadlines are approaching.

The growth of AI-generated text is a double-edged sword. On the one hand, it can be used to create a realistic and informative text, on the other hand, to spread false information and fake news. For example, in 2020, a blog post created by AI went viral and was widely shared on social media. The message was supposedly written by a Black Lives Matter activist, but was actually generated by an AI language model. This is an example of how AI-generated text can be used to trick people and spread misinformation.

Another example of damage caused by AI-generated text is the OpenAI GPT-2 language model. The model was trained on a huge dataset of Internet text containing toxic and harmful content. As a result, the model generated text that contained bias and harmful language. This shows that the technology behind AI models is not perfect and can cause harm if not used responsibly.

For example, here's an excerpt of an misinformative article that was written by the OpenAI GPT-2 language model.



As ChatGPT technology develops, the text generated by these models becomes even more complex and harder to distinguish from human-written text. This makes it even more important for students to use these tools ethically and responsibly and to develop critical thinking and analytical skills

Abuse of ChatGPT can lead to a lack of critical thinking and analytical skills necessary for academic and personal growth. If students rely solely on ChatGPT to complete their assignments, they may be missing out on valuable learning opportunities. Additionally, if they present AI-generated text in their work, they can be accused of plagiarism and academic dishonesty.

In conclusion, it can be said that the text created by artificial intelligence can change the way of learning and writing academic works. While ChatGPT and other AI language models can be powerful tools for generating ideas and content, it is important that students use them responsibly and ethically. We must be aware of the possible consequences of academic dishonesty and ensure that the work presented is our own. It is also important to acknowledge the sources we use in our academic work, whether produced by artificial intelligence or written by humans. This way we can ensure the originality and ethics of our academic work and avoid the possible consequences of academic dishonesty. It is important to remember that technology can be a great tool for learning, but it should not replace the skills and knowledge we need to develop as responsible and ethical students.

ACHIEVEMENTS

STAFF ACHIEVEMENTS

Archana Aniyan

·Attended Faculty Development Program(FDP) on ML AND DL Applications in Computer Vision on 30/01/2023 to 03/02/2023 organized by Department of ECE, ASIET

Savitha Raghavan:

·Attended Faculty Development Program (FDP) on ML AND DL Applications in Computer Vision on 30/01/2023 to 03/02/2023 organized by Department of ECE, ASIET

Neetha K

·Attended Faculty Development Program (FDP) on ML AND DL Applications in Computer Vision on 30/01/2023 to 03/02/2023 organized by Department of ECE, ASIET

·Was the program committee member and reviewer in the International Conference on Communication and Intelligent Systems ICCIS 2022 held at National Institute of Technology Delhi on 19/12/2022-20/12/2022

Aswathy N

·Attended Faculty Development Program FDP) on ML AND DL Applications in Computer Vision on 30/01/2023 to 03/02/2023 organized by Department of ECE, ASIET

Anjana S

·Attended Faculty Development Program (FDP) on ML AND DL Applications in Computer Vision on 30/01/2023 to 03/02/2023 organized by Department of ECE, ASIET

Divya V Chandran

·Was the program committee member and reviewer in the International Conference on Computer Vision and Robotics (CVR 2023) organized by Babu Banarasi Das University , Lucknow, India held during February 24-25 , 2023

STUDENTS ACHIEVEMENTS

Student Batch	Name	Title of course attended	Conducted by	Date
2022-26	AHAMMED IRFANTS	Led making workshop	ASIET	12/22/2022
2021-25	GAUTHAM VG	Professional Student's Submit 2023	ASAP Kerala	02/11/2023
2021-25	ISABEL ROSE BENNY	Professional Student's Submit 2023	ASAP Kerala	02/11/2023
2021-25	JEFFIN PAUL	Professional Student's Submit 2023	ASAP Kerala	02/11/2023
2022-26	EVELYN MARIA ANTONY	lot and industry 4.0	Ashwamedha'22	12/22/2022
2022-26	ANNA MATHEWS	lot and industry 4.0	Ashwamedha'22	12/22/2022
2022-26	ANNA MATHEWS	Wordpress Development	Google Developer Students Club	11/15/2022
2022-26	EVELYN MARIA ANTONY	Workshop on Wordpress Development	Google Developer Students Club	11/15/2022
2021-25	ANIT SUNIL	Volunteer of Ashwamedha'22	ASIET	12/22/2022

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