

Government Engineering College Palakkad

Sreekrishnapuram, Kerala - 678633



**Collaborative Research and Learning (CoRAL) Report
(2022-2023)**

ABSTRACT

Government Engineering College Palakkad (GECPC) was established in 1999 at Sreekrishnapuram village of Palakkad. The college runs six undergraduate courses of study, namely Computer Science & Engineering, Electronics & Communication Engineering, Information Technology, Mechanical Engineering, Electrical & Electronics Engineering and Civil Engineering. Department of Computer Science and Engineering runs a postgraduate program in Computational Linguistics and Department of Mechanical Engineering offers a postgraduate program in Robotics. Over the past decades, GECPC has made a steady progress in terms of academic excellence, infrastructure and development of key subsystems. The College has got good infrastructure facilities such as smart class rooms, library, central computing facility, e-learning centre, laboratories & workshops equipped with machines and ancillaries comparable with industrial standards, seminar halls, open air auditorium and various amenities such as hostels (men and women), staff quarters, canteen, co- operative society etc. The institute has well established Student Counseling Cell, Entrepreneurship Development Club, National Service Scheme, Alumni Association and Parent Teacher Association. The student chapters of professional bodies like the IEEE, ISTE and the different clubs and forums offer a wide range of opportunities for students to nurture their talents thereby promoting their overall development and leadership qualities. The Research and Development (R & D) Committee under TEQIP II aims to nurture research culture in the College by promoting research in newly emerging and challenging frontier areas of Engineering and Technology. It encourages the students and faculty to undertake the research in newly emerging frontier areas including multidisciplinary fields. This enhances the general research capability of budding technocrats.

Collaborative Research and Learning (CoRAL)

Kerala is one of India's most progressive States in terms of social welfare and quality of life. The Government of Kerala which has initiated a number of schemes in various other sectors has recently adopted a firm stance in improving its higher education sector with prime focus on research. The State has consciously set aside considerable amount of funds in the recent budget for the enrichment of research and learning in the higher education sector.

In this juncture, this centre is aimed to bridge a conspicuous gap existing between the research produced by the academics in the academic institutions and problems in the society warranting intelligent, sustainable and environmental friendly technological solutions. There are a good number of central and state funded research institutes in almost all the districts of the state. Apart from these, there are several small and medium scale industries in many of the districts. The local issues of regions are handled by the local self-governments. Currently these agencies/institutes and the academia of the state function as two verticals with minimum interaction between them. This scenario needs urgent intervention whereby a centre can be established which acts as a link, facilitating a mutual give and take between research institutes, industries, LSGDs and Government missions on one side and academic institutions on the other. This is also expected to attract researchers to do more meaningful research, thereby spearheading their objectives to reach out to the society. It is in this context that CoRAL can play a pivotal role. CoRAL pave the way for the seamless interaction between the academia of the state with other stakeholders which includes research institutes, industries, LSGDs and Government Missions in the state paving way to quick, intelligent, sustainable and environment friendly technological solutions to problems/issues in the society.

As per order No L5/6422/23/DTE (IV) a total amount of RS 1,04,000/- was sanctioned to initiate various Collaborative Research and Learning (CoRAL) activities for the AY 2022-23. As per AS obtained from DTE, five different CoRAL activities were organized and the detailed expenditure statement is given as below.

Sl No	Particulars	Expenditure Permitted	Actual Expense
1	Interaction with local institutions (2 institutions)	15000	15050
2	Workshop (2 Workshops)	40000	40,004
3	Field visit	15000	16640
4	Hackathon	20000	23614
5	Student challenge	10000	6450
6	Miscellaneous	4000	4000
	TOTAL	1,04,000	1,05,758

CORAL PROGRAMS

1. FIELD VISIT

Third year students of ECE department visited Integrated Rural Technology Centre (IRTC), Mundur. IRTC envisions the upliftment of the underprivileged sections of the society through knowledge sharing, appropriate technology transfer and skill development. The institution intervenes to meet the new age challenges and find sustainable solutions in the sector of solid waste management, watershed development, energy management, local planning and livelihood. IRTC has played a pivotal role in handholding the local self-government institutions across the state through their project implementation and consultancy support for preparing Detailed Project Reports for various developmental programmes. IRTC has extensively involved in research, innovation and extension activities to empower the marginalized communities across the state. GEC Palakkad has MoU with IRTC Mundur



First year students of ECE department visited Institute for Communicative and Cognitive Neurosciences (ICCONS) is an autonomous not-for-profit neuroscience speciality hospital & research institute established under Health and Family Welfare Department, Government of Kerala. ICCONS aims to scientifically diagnose, treat and rehabilitate congenital or non-congenital intellectual and linguistic diseases such as autism, cerebral palsy, dementia, learning disabilities, non-infectious cerebral and neurological paralysis and dementia. ICCONS is the only institution in India with facilities for the treatment, rehabilitation and research of cerebral neurological disorders and diseases. GEC Palakkad has MoU with ICCONS.



2. WORKSHOP

a) WORKSHOP ON BLOCK CHAIN

Event Goal : Blockchain Workshop
Start Date & Time : 23rd of March 2023 at 10:00 AM
End Date & Time : 23rd of March 2023 at 3:30 PM
Coordinators : Dr. Silpa Sangeeth L R, Associate Professor, IT Dept
Platform/Venue : Government Engineering College Sreekrishnapuram
Event Type
(Technical/Non-Technical/ Humanitarian/ Membership development) : Technical
Guest/Speaker(if any) : Sosu Alex and Gopikrishna M
No. of IEEE Members Attended 2
No. of Non-IEEE members attended 38

The “Blockchain Workshop” was conducted by IEEE SB GEC Palakkad under CORal – Collaborative Research and Learning Platform in association with IEEE SB GEC Palakkad. The session was handled by Sosu Alex, Blockchain Architect, EY and Gopikrishna M, Founder & CEO, Promenant Innovation Labs Pvt Ltd. Sosu Alex, started the session by giving a brief introduction to Blockchain Technology and its various applications. She discussed how crypto assets are becoming prominent in the current scenario. Later she deep-dived into the underlying Blockchain technologies, discussing blocks, signature, hashing, nonce, etc. She demonstrated how the blockchain network is cryptographically secure with hashes and various hashing methods. Finally, there was a hands-on session on solidity in Remix IDE. The session winded up with the creation of individual custom tokens by the participants. The following session was handled by Gopikrishna, who majorly focused on the wide variety of applications where Blockchain could be used. He unleashed the potential of Blockchain in sectors from agriculture to supply chains. He stressed the business use cases of the technology and how it could be a game changer. The concept of decentralization and transparency was properly conveyed to the participants and he claimed that Blockchain is the apt technology for implementing them. Overall, the workshop helped in building aptitude and curiosity among participants towards this revolutionary technology. The speakers did a great job of explaining complex terminologies and technologies underlying blockchain. Participants actively coded in the hands-on session and their doubts were clarified by the resource persons.





b) WORKSHOP ON 3 PCB & 3-D MODELLING

- Start Date & Time - 23/03/23, 10.00 AM
End Date & Time - 24/03/23, 10.00 AM
Venue - Government Engineering College, Palakkad
Studio hall EEE Department
Demographics -
Total no. of participants - 60
Number of IEEE members - 6
Number of non-IEEE members – 54

PCB & 3-D MODELLING WORKSHOP was conducted on behalf of IEEE IAS GEC PALAKKAD under CORaL- Collaborative Research and learning platform in association with IEEE IAS SBC PKD. The 2 days session was handled by Anuraj N Founder & CEO Saron Innovature Labs LLP. The mentor was Sourav S8 ECE Department GEC PALAKKAD .The workshop focused on designing of PCBs by the delegates and familiarisation of 3-D MODELLING. All the delegates were given laptops to work on individually. Session started by providing a small introduction about the software requirements and tools for designing PCB. The delegates were then provided with some circuits to design themselves and the design was verified by mentor. These were saved in PDF format. On the second day mentor started by

providing basic idea about 3- D MODELLING and software required for doing modelling. The workshop was very interesting and useful for the students to learn more about PCBs.





3. FIELD VISIT

ATTAPPADY VISIT

Students of GEC Palakkad including 3 staffs visited 2 villages of Attappady to know about the living conditions of the native residents in the villages and to understand the technology possibilities for the upliftment of tribal areas. The visit was conducted as the beginning of an ‘Immersive internship through a survey of facilities available at Attappady Tribal village Palakkad’. The team visited the villages Anavaayi and Kavundikkal on 2nd and 3rd February 2023.

On the first day of the visit the team visited the village of Kaavundikal and examined their lifestyle and hygiene. The water from the river, the only available source of water, was collected for examination. The team further visited the school which was found to be sufficiently developed and only lacked the proper disposal of menstrual pads.

On the 2nd day the team visited the village of Anavaayi which was much more devastating. the natives had no proper electric connectivity or transportation facility. Solar panel facility was available in the village, but due to the lack of sufficient sunlight the facility could not meet the requirement. Collapsing on the nearby hanging bridge brought the people to a

terrible situation of relying on private jeep transport which is very expensive. The availability of pure water is also questionable. No sufficient protection has been provided from wild animals. Menstrual hygiene is also very terrible in the village.



4. MATRIX'23 - HACKATHON

Event Goal	Hackathon
Start Date & Time	22nd of March 2023 at 10:30 AM
End Date & Time	23rd of March 2023 at 3:30 AM
Coordinators	Dr. Vinita C, Associate Professor, EEE Department
Platform/Venue	Government Engineering College Sreekrishnapuram
Event Type	
(Technical/Non-Technical/ Humanitarian/ Membership development)	Technical
Host OU	
Guest/Speaker(if any)	
No. of IEEE Members Attended	2
No. of Non-IEEE members attended	22

'MATRIX' The hackathon organized by IEEE SB GEC PKD under the Collaborative Research and Learning Platform- CORaL, in association with IEEE CS SBC GEC PKD, was a great success. The event was held on 22nd and 23rd March 2023 and saw participation from 24 individuals, including 2 IEEE members and 22 non-IEEE members. The hackathon focused on developing solutions to improve Sustainability. Participants worked in teams to develop a working prototype within 24 hours, and the teams were judged based on their innovativeness, feasibility, and effectiveness in addressing the problem statement. The coordinators, Viswanatha Kartha V and Pavan G Nair provided round-the-clock support and technical assistance to ensure that the teams could focus on developing their solutions.



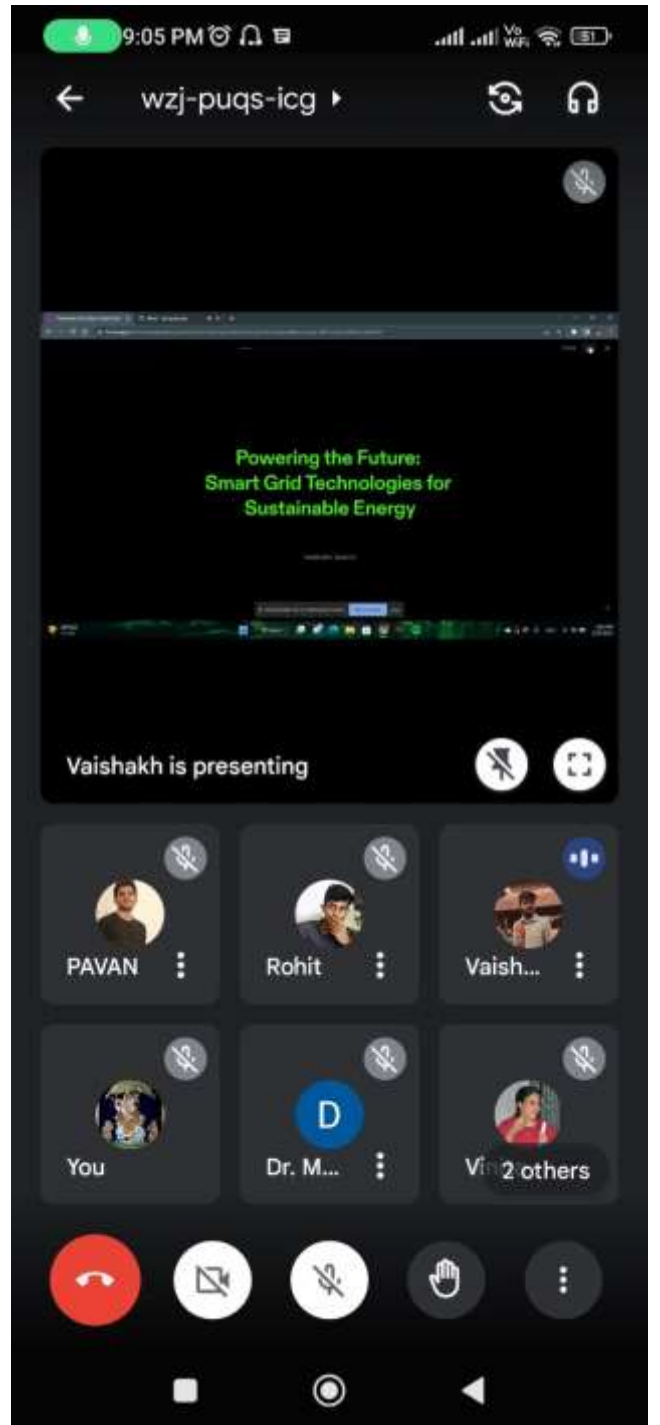
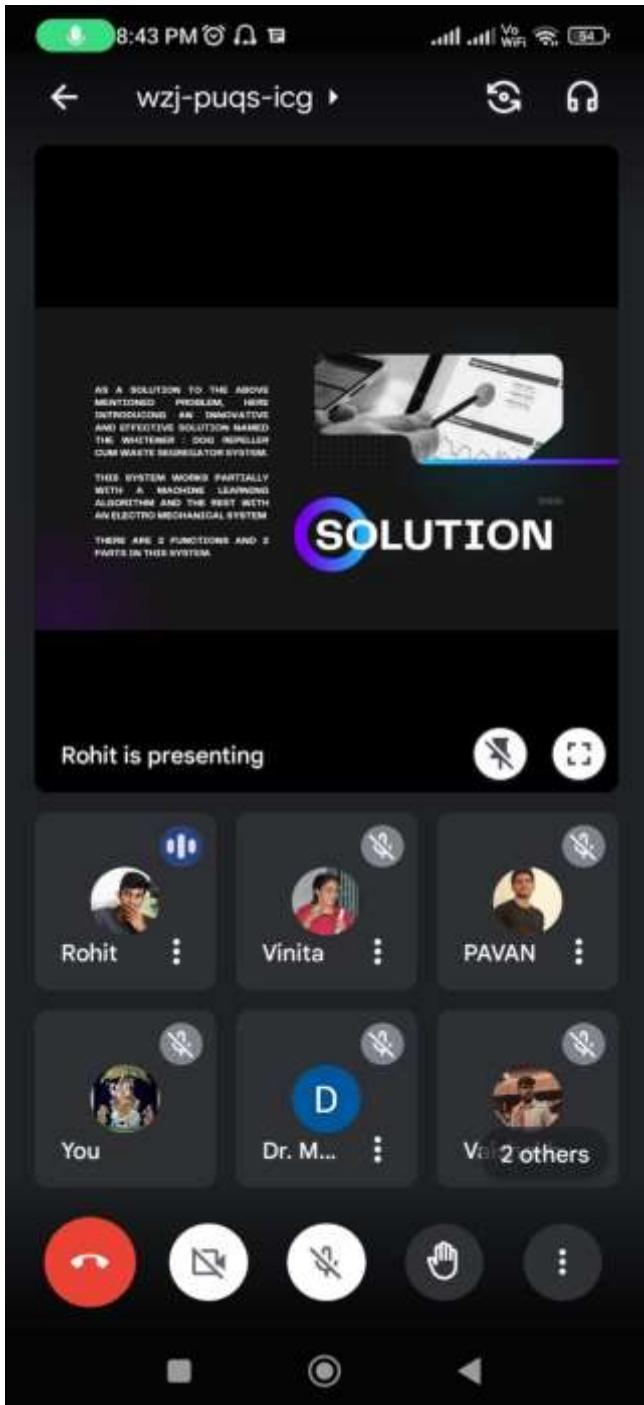
5. STUDENT CHALLENGE

Student Challenge is a focused form of innovation that encourages creative solutions to a particular desire, concern, or area of improvement. Students from various institutions across the state were allowed to participate in the challenge to present the problems or issues identified

within the institution/locality that could be solved by appropriate technological interventions.



The event had 10 participants from various colleges. The online competition was judged by the judging panel consisted of Dr. K Meenakshy, Principal, Dr. Vinita Chellappan and Dr. Anitha R. Rohit K, Final year ECE student of GEC Sreekrishnapuram bagged the first prize in the challenge for the concept “Dog repeller cum waste segregator system” to curb the dog menace which is prevalent in the Stste.



CONCLUSION

For any education, and technical education in particular, the basic model of a ‘teaching – only’ institution is inadequate to ensure quality education. In all disciplines of technical education, knowledge is dynamic with new technologies being introduced very frequently. In this scenario, it is not possible for the teachers to deliver good quality instructions without being tuned to the current developments in the subjects, for which they must constantly update their knowledge. A well-recognized way to deal with this paradigm is for the teachers to be active researchers in the areas in which they teach and exhibit a very high correlation between quality teaching and R & D activities. GEC Palakkad recognized the importance of R & D in the vertical growth of the institution and committed to focus on the scientific and industrial research in the various disciplines of Engineering. The R & D committee of GEC Palakkad encourages the students and faculty to undertake the research in newly emerging frontier areas of Engineering and Technology. This enhances the general research capability of budding technocrats. Students are motivated to undertake both in-house and industry-based projects. R & D committee of GEC Palakkad is successful in enhancing the quality publications of faculty and students in peer reviewed journals and conferences. Committee successfully implemented innovative products developed by students to meet societal challenges. R & D committee GEC Palakkad is committed to foster *Atma Nirbhar Bharat*, and **Make in INDIA** through Industry partnerships.