



**A Report on Event/Activity
submitted to AICTE-SPICES
AICTE New Delhi
(AY: 2022-2023)**

**Peripherathon 1.0:
AI-POWERED IOT HARDWARE HACKATHON**

Duration:

Round 1: 20th April 2023

Online Training on IOT Board: 3rd Week of April 2023

to

Round 2: 7th May 2023

Organized and conducted by:

Bhartiya Vidya Bhavan's
Sardar Patel Institute of Technology
Munshi Nagar, Andheri (W), Mumbai-
400058, Maharashtra, India

Electronics Student Association (ESA)
Electronics Engineering Department

Core Team

Dr. B. N. Chaudhari, Head of the Institute
Dr. Y. S. Rao (Idea Lab Coordinator)
Dr. D. R. Kalbande (Idea Lab Coordinator)
Dr. D. C. Karia, HoD
Dr. Reena Sonkusare, HoD
Dr. Prashant V. Kasambe,
(AICTE-SPICES Coordinator)
Prof. Najib Ghatte,
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Report Submitted by:

Dr. Prashant V. Kasambe,
Prof. Najib Ghatte,
Electronic Student Association (ESA)

Table of Contents

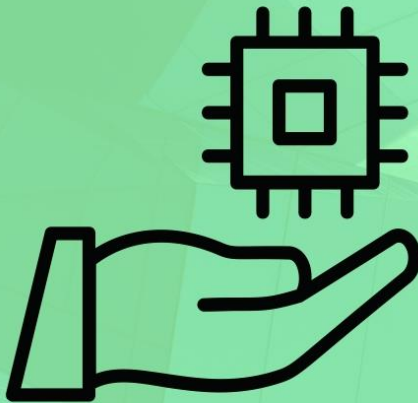
1. Preamble.....	2
2. Round 1.....	9
3. Round 2.....	12
4. List of Winning Teams.....	13
5. ESA: AICTE SPICES on Social-Media.....	16
6. Club Promoted.....	16



Bharatiya Vidya Bhavan's Sardar Patel Institute of Technology (S.P.I.T.)

(An autonomous Institute affiliated to University of Mumbai)
presents

PERIPHERATHON 1.0



Registration Closes: 15th April 2023

Round 1: 20th April 2023

Online Training on IOT Board: 3rd Week
of April 2023

Round 2: 7th May 2023

AI-POWERED IOT HARDWARE HACKATHON

AN EVENT SPONSORED BY AICTE-IDEALAB AND AICTE-SPICES

CLICK HERE TO REGISTER



PRIZES WORTH



S.P.I.T, Bhavans Campus, Munshi Nagar,
Andheri (West), Mumbai, Maharashtra-400058

1.0 Preamble

Welcome everyone to this hackathon focused on the exciting intersection of Artificial Intelligence and Internet of Things (AI with IoT) design. Our goal for this event is to bring together passionate innovators and problem solvers who are interested in using cutting-edge technologies to tackle real-world challenges. Over the next few days, we will be working on problem statements related to various domains such as healthcare, agriculture, transportation, and many more. These problems are complex and require creative solutions that combine AI and IoT design thinking.

To help us in this endeavor, we have provided you with access to a range of IoT design boards, hardware kits, and software tools that you can use to build your prototypes. We encourage you to think outside the box, collaborate with your fellow participants, and leverage your diverse skills and expertise to develop innovative solutions that can make a positive impact on society. Remember that the key to success is not just the end product but also the process of problem-solving and learning from each other. We hope that you will make the most of this opportunity to learn, grow, and create something amazing. Good luck, and let's get started!

About Institute



Bharatiya Vidya Bhavan's Sardar Patel Institute of Technology, an autonomous institute affiliated to the University of Mumbai has been a renowned name and a symbol of excellence among the Engineering institutes across the nation. Since its inception, the institute has maintained a 100% placement record, encouraged innovation, research and entrepreneurship while maintaining its values: Integrity, Excellence, Social sensitivity and Globalization.

About our sponsors

No event is possible without the support of sponsors that share and support the vision and ideals of an organization. Like wise, the PERIPHERATHON 1.0 would not have been possible without the support of our sponsors: AICTE and SPICES.

AICTE, All India Council for Technical Education is a national body that promotes the development of facilities available for technical education in a coordinated manner.

The sole purpose of Idea-Lab, an initiative by AICTE, is to provide all the necessary facilities for the conversion of an idea into a prototype, that too under one roof! With the on-campus Idea-Lab facilities, students are more equipped than ever to make their idea a reality!

SPICES, the Scheme for Promoting Interests, Creativity, and Ethics among Students, provides financial support to institutions for developing clubs for the well-rounded development of students by promoting their interests, creativity and ethics.

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About ESA



The Electronics Students Association (ESA), is an organization run by the students of the Electronics and Telecommunication department under the guidance of faculty mentors that conducts various activities related to the Electronics domain throughout the year.

The students are regularly motivated to showcase their skills through various technical events. ESA invites industrial experts and alumni from the Electronics domain for guest sessions to motivate the students. It also organizes technical events that challenge students to work with hardware, circuit designing, circuit building, and much more!

About IEEE



IEEE is the world's largest technical professional organization dedicated to the advancement of technology for the benefit of humanity.

The presence of the IEEE student body opens the door to the global community of tech enthusiasts, various conferences, and various professional and educational activities. IEEE S.P.I.T. organizes various technical and humanitarian events throughout the year. Our mission is to not only educate youth in the technical field but also help increase social awareness. We are strongly committed to the holistic development of the students as they seek careers in research and innovation and work towards the promotion of technology for the benefit of society.

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WHY SHOULD YOU PARTICIPATE IN THIS EVENT?

- Nationally recognized certificates issued by AICTE-SPICES, AICTE IDEALab, IEEE, SP-TBI, IIC, and S.P.I.T
- Learn and grow: An opportunity to learn new skills, and cutting-edge technologies in AI and IoT design, and how to apply them to solve real-world problems.
- Networking: Opportunity to collaborate with other participants, mentors, and industry experts leading to new friendships, partnerships, and career opportunities.
- Unique experience: Participating in a hackathon can be a fun and rewarding experience. Additionally, if your team is successful, you may win exciting prizes!



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PERIPHERATHON 1.0

AI-POWERED IOT HARDWARE HACKATHON

Round 1



PRESENTATION OF THE ABSTRACT WITH
HARDWARE REQUIREMENTS AND
BUDGET

Round 2



SOLVING A PROBLEM STATEMENT AND
DESIGNING OF FINAL PROTOTYPE



DATES TO REMEMBER

Registration Closes: 15th April 2023

Round 1: 20th April 2023

Online Training on IOT Board: 3rd Week of April 2023

Round 2: 7th May 2023

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Round 1 :

PRESENTATION OF THE ABSTRACT WITH HARDWARE REQUIREMENTS AND BUDGET : 25 Marks

The teams are free to choose any domain and find out the methodology to solve the problem given by the organizing team. The team should prepare the presentation for the selected methodology with hardware requirements and its budget.

The evaluation results of this round will be communicated to the teams selected for round 2 based on the performance of the round 1 only.

Round 2

SOLVING A PROBLEM STATEMENT AND DESIGN OF FINAL PROTOTYPE : 75 Marks

The selected teams will be given a budget of ₹2500/- in order to build a prototype of the idea that they proposed in round 1 based on rubrics including innovations, cost, usability, reliability, etc. parameters set by the judges. This amount can be utilized for purchasing sensors, actuators, or any required hardware components for interfacing with the micro-controller-based system. The team needs to submit the receipt for the same.

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Rules for the Event:

- Submissions (Abstract and Resume) will be accepted only through Unstop.
- Plagiarism and malpractices of any kind will not be tolerated, strict action will be taken against the team which includes immediate disqualification and a ban from participation in future technical events at S.P.I.T.
- Discipline and Professionalism are expected from the participants, failure in compliance with any instruction during the event may lead to action depending on the degree of the offense.
- Judging criteria will be based on the rubrics framed by the judges and organizers.
- Organizer reserves the right to change the timings as per the need.
- Organizer reserves the right to change the number of top teams and the cash prizes as per the feedback of the experts.

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2. Round 1 (Presentation of the Abstract with Hardware Requirements and Budget):

Round 1 was conducted in completely online mode. The details of Meet and rubrics for evaluation were as follows.

Name	Designation and Organization
Dr. Deepak S. Marathe	HOD & Dean R & D, A C PATIL College of Engineering
Prof. Prachi Dhanawat	Assistant Professor, UMIT, SNDT Women's University
Prof. Anjali Yeole	Assistant Professor, VESIT, Mumbai
Prof. Sejal kadam	Assistant Professor, D J Sanghavi COE, Mumbai
Prof. Lakshmi M. Gadhikar	Associate Professor, Fr. CRIT, Vashi.
Prof. Sonia Joshi	Assistant professor, KJ Somaiya COE, Mumbai
Prof. Shilpa Kale	Assistant professor, KJ Somaiya COE, Mumbai
Prof. Prachi Dalvi	Assistant Professor, FrCRCE, Mumbai

Group No.	Expert 1	Expert 2	Internal Staff	Meeting Link
D1	Dr. Deepak Marathe	Prof. Prachi Dhanawat	Mr. Venkat Islur	https://meet.google.com/dht-vdcb-vpp
D2	Prof. Prachi Dalvi	Prof. Anjali Yeole	Mr. Neha Rajurikar	https://meet.google.com/qrp-pdom-uop
D3	Prof. Sejal Kadam	Prof. Lakshmi Ganhikar	Mr. Jitendra Dongre	https://meet.google.com/auh-nfvh-uwn
D4	Prof. Sonia Joshi	Prof. Shilpa Kale	Mr. Mukund Pawar	https://meet.google.com/vpa-nvcp-vr

Innovativeness (10 M), Creativity (10 M), Social Impact (5 M), Presentation (5 M), Potential for (Patent/Product), Budget (in Rs.), Time Discipline (Penalty in Marks)

Glimpse of the Round 1:

meet.google.com/vpa-nvcp-vrz?authuser=0

Abhishek Bhatia is presenting

Proposed Block Diagram

12:08 PM | PERIPHERATHON 1.0 Round 1 - D4

Windows taskbar: e, File Explorer, Google Chrome, Microsoft Edge, 12:08 PM, 20-04-23

meet.google.com/auh-nfvh-uw?authuser=0

Mohammed Maaz Khan is presenting

Idea/Approach Details

we intend to use ESP32 AI Thinker board, X-NUCLEO-IKS02A1 sensor board, FTD board, and ESP8266/Arduino Uno.. using the XNUCLEO-IKS02A1 sensor board, which measures acceleration and vibration. The collected data can be used to identify potholes. STM32 and ESP32 boards are both suitable for a pothole detection project due to their high processing power, low power consumption, and wireless connectivity capabilities. They can also connect to the internet and other devices using Wi-Fi, allowing for real-time data transmission and monitoring. Overall, both STM and ESP boards offer reliable and efficient platforms for developing a pothole detection system. **ESP32** STM32 for storing our data we use a real time database like **Firebase/Azure**

Block Diagram

- ESP32 AI thinker board
- the STM32 Nucleo-L4R5Z
- Neo 6M GPS module
- XNUCLEO-IKS02A1 sensor board
- Firebase/Azure
- MIT App inventor
- 9V battery
- Keras (for running the ML algorithm)

12:08 PM | PERIPHERATHON 1.0 Round 1 - D3

Windows taskbar: e, File Explorer, Google Chrome, Microsoft Edge, 12:08 PM, 20-04-23

meet.google.com/grp-pdom-uop?authuser=0

12:08 PM | PERIPHERATHON 1.0 Round 1 - D2

Activate Windows
Go to PC settings to activate Windows.

meet.google.com/dht-vdcb-vpp?authuser=0&pli=1

Saali Mhapankar is presenting

MOTIVATION/ SCOPE OF PROJECT(2/2)

Urban India:

- Because of their hectic metro schedules, people in the cities cannot devote enough time and affection to their plants, causing them to dry out rapidly. Now, our IoT-based smart agriculture is assisting in the resolution of this issue. As the soil in the pot seems to be less wet, the pump will begin to run, and when the need is met, the pump will stop, and the plant will not dry.

Vinod kumar Repani has left the meeting

12:08 PM | PERIPHERATHON 1.0 Round 1 - D1

Activate Windows
Go to PC settings to activate Windows.

3. Round 2 (Final Round):

The selected teams for Final Round 2 were given a budget of maximum ₹2,500 in order to build a prototype of the idea that they proposed in Round 1. An online meet was conducted with the selected teams for any updates and guidance needed to build the prototypes. The ideas proposed by the selected teams will be patented in the name of their institute/institutes, SPIT and SP-TBI. The funding for prototype development and patent was sponsored by AICTE-Idea Lab of the institute. The event was conducted at Nidhi Prayas Lab at the institute.

Round 2 of the evaluation was conducted in completely offline mode. The Evaluation was conducted in two phases. Phase 1: 12:00PM, Evaluation based on the prototypes developed by Participating Teams. Minor modifications in existing Hardware Interface or Programming will be suggested by Panel of Judges. Phase 2: 5:00 PM, Evaluation based on the demonstration by participating teams for modifications suggested by the Panel of Judges during Phase 1. The rubrics for Round 2 was as follows. 1. How unique or creative is the project idea? 2. How much of the proposed project idea has been achieved? 3. How well does the product or solution work in terms of claimed functionality? 4. Do the presenters provided a clear and convincing argument for their solution? 5. How implementable is the project in real life? 6. How much changes have been achieved for modifications suggested during Phase 1?





4. List of Winning Teams

In Round 2, out of selected 19 teams, 12 teams @ 50+ participants across the Nation participated in the actual event. Among these 12 participating teams, 6 teams were selected as winners given in Table 1 as follows.

Rank	Team Name and Team Members		Name of the Institute	Domain
1	Spot Holes	1. Prathamesh Kulkarni 2. Maaz Khan 3. Sarthak Jaiswal 4. Siddant kamlaskar	Sardar Patel Institute of Technology (SPIT), Mumbai, Maharashtra	IoT Applications in Road Safety
1	IoT Innovators	1. Abhay Bhosle 2. Chaitanya Sawant 3. Om Kumbhar	Atharva College Of Engineering (ACE), Mumbai, Maharashtra	IoT applications for Real time data acquisition, object tracking and analysis
2	652102-U2HZ17J9	1. Saili Mhapankar 2. Shubh Pokarne 3. Viraj Deshmukh	Dwarkadas J. Sanghvi College of Engineering (DJSCE), Mumbai, Maharashtra	IoT Applications in Agriculture
2	Arogyamukhi	1. Dheeraj Aavula 2. Lavanya Madikonda 3. Revanth Bollepelli 4. Vamshi	Jayamukhi Institute of Technological Sciences (JITS), Warangal, Andhra Pradesh	IoT applications for Environment Safety and a Healthy Ecosystem
3	Drishya	1. Prajwal Bhagwat 2. Shruti Jha 3. Tushar Amdoskar 4. Vinit Jha	Atharva College Of Engineering (ACE), Mumbai, Maharashtra	Multidisciplinary application using IoT Technology
3	Air Calibre	1. Abhinav Deotale 2. Bhuvan Bagwe 3. Kathan Shah	Dwarkadas J. Sanghvi College of Engineering (DJSCE), Mumbai, Maharashtra	IoT applications for Environment Safety and a Healthy Ecosystem



The event was a grand success due to hard work from all the members of ESA, expert guidance and most importantly active participation from all participating teams. The institute coordinators of the AICTE-SPICES would like to sincerely thank with due respect the participation, guidance, help, and support from Panel of Judges from academics according to the various domains like Environment Safety and Health Ecosystem, Home Safety and Security, Transportation and Specially abled Citizens, Women and Baby Safety.

The support from Dr. Y. S. Rao, Coordinator AICTE-Idea Lab, Dr. D. R. Kalbande, Co-coordinator AICTE-Idea Lab, Prof. K. T. Talele, and team of SPTBI, Dr. D. C. Karia, HoD, Electronics Department, Dr. Reena Sonkusare HoD, Electronics & Telecommunication Department, all Teaching staff namely Prof. Jignesh Sisodia, Prof. Renuka Pawar and Prof. Priya Deshpande, non-teaching staff of the institute, Mrs. Pallavi More, Registrar, Mrs. Sangeeta Fernandes, Accounts and S.P.I.T. office staff of the institute was very crucial. Most importantly sincere thanks to Dr. B. N. Chaudhari, Principal, S.P.I.T. for accepting the proposal of the event, mentoring and financially supporting this event. The coordinators would also like to extend sincere thanks to respected authorities at AICTE, New Delhi for sponsoring this event. The coordinators expect the active involvement of ESA for conducting events in future under AICTE-SPICES.

Glimpse of the Round 2:



5. ESA: AICTE SPICES on Social-Media

ESA is active on social media with tagging AICTE-SPICES. Following are the weblinks.
LinkedIn: <https://www.linkedin.com/company/electronics-student-association/>

Instagram: https://instagram.com/esa_spit?igshid=MDM4ZDc5MmU=

6. Student Association Promoted:

This event was conducted in association with Forum for Electronics and Telecommunication Students (F.E.T.S.), Department of Electronics & Telecommunication Department and IIC, S.P.I.T, SP-TBI and S.P.I.T AICTE-Idea Lab.