



NEW HORIZON COLLEGE OF ENGINEERING

Autonomous College, Permanently Affiliated to Visvesvaraya Technological University, Belagavi
Approved by AICTE & UGC, Accredited by NAAC with 'A' Grade, Accredited by NBA



A Report

AICTE IDEA Lab – Summer Camp

A two-week Summer Camp was successfully organized at New Horizon College of Engineering under the initiative of the AICTE IDEA LAB and the Department of Research and Development.

Chief Mentor : Dr.Manjunatha, Principal

Faculty Coordinator : Dr.Revathi V, Dean R&D

Faculty Co Coordinator : Dr.A.Sujin Jose, Associate Professor- R&D/Mech

Duration : 5th May 2025 to 16th May 2025 (10 days of classes)

Participants: Grade 6 to 9 students from New Horizon Gurukul & New Horizon Public School, Bangalore

Trainers: Students of New Horizon College of Engineering, Bangalore

Student Coordinators: K.T.Pravin, Mechanical
K.S.Rakshitha, CSE (DS)
K.Jagan, EEE
Ms.Vismaya, CSE

Faculty Program Coordinators: Dr.Joshua Daniel Raj, Associate Professor, CSE (DS)
Prof. Vinod Kumar, Sr.Asst.Professor – EEE
Prof. C.Rakesh, Sr.Asst.Professor & HOD – Mechanical

Objectives of the Summer Camp

1. Introduce students to STEM (Science, Technology, Engineering, and Mathematics) concepts.
2. Provide hands-on experience with prototyping tools, robotics, and 3D printing.
3. Enhance problem-solving and creative thinking skills.
4. Foster teamwork and collaboration.

Overview of the program

The camp was designed to introduce school students from Grade 6 to 9 to exciting concepts in science, technology, and innovation through interactive hands-on sessions, guided

by college students from various engineering branches. The camp covered topics like 3D Designing and Printing, Everyday Electricals, Robotics, IoT, App Development, Circuit Design, Web Development, Scratch Programming, and Drone Technology. Each session was planned to be both educational and engaging, ensuring students had a memorable and insightful learning experience.

Day 1 (5th May 2025): 3D Design and 3D Printing

Venue: 3D Design – SAP Lab, Department of Mechanical Engineering
3D Printing – IDEA Lab

Trainers: Students from Mechanical Engineering

The summer camp commenced with an engaging introduction to 3D Design and 3D Printing. Students were introduced to Fusion 360, a professional 3D modeling software. They learned the basics of designing components in 3D space, understanding how digital models transform into real objects. The participants then observed a live demonstration of 3D Printing, where their designed components were printed using a 3D printer. This session sparked curiosity about modern manufacturing techniques and digital fabrication.



Day 2 (6th May 2025): Everyday Electricals

Venue: IDEA Lab, SAP Lab & DEMS Lab, Department of Mechanical Engineering

Trainers: Students from Electrical & Electronics Engineering

The second day focused on Electricity in Daily Life. Students were taught about the basics of electrical systems and how electricity is generated, particularly through Hydro and Wind Power Plants. Visual aids and interactive discussions made it easy for young students to grasp complex concepts. They learned how to calculate resistance using color coding and performed online simulations through Tinker CAD. Additionally, they were introduced to staircase wiring, basic Arduino simulations, and were tasked with designing a simple circuit. The hands-on activities kept students actively engaged throughout the session.



Day 3 (7th May 2025): Robotics - Smart Dust bin

Venue: IDEA Lab

Trainers: Students from Computer Science & Engineering

On the third day, students stepped into the world of Robotics by developing a Smart Dustbin. The session began with an introduction to automation and the role of sensors in modern appliances. The participants assembled a smart dustbin setup that opened automatically when someone approached it, using Ultrasonic Sensors and Arduino. This hands-on activity was designed to help students understand sensor-based applications and control systems in a fun, practical way.



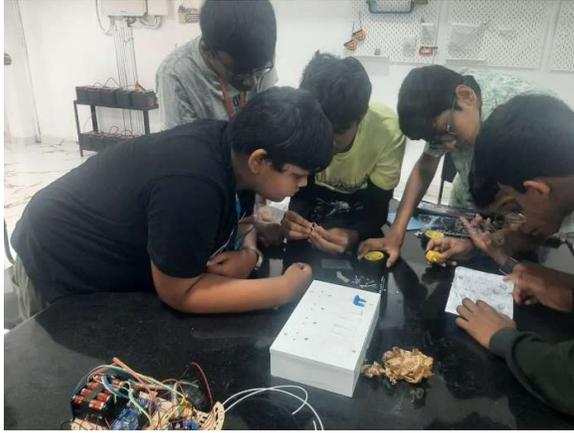
Day 4 (8th May 2025): Robotics - Line Following Robot

Venue: IDEA Lab

Trainers: Students from Computer Science & Engineering

The robotics module continued with the development of a Line Following Robot. Students learned about various sensors used in robotics, such as IR sensors, and how they can

be integrated with microcontrollers to enable robotic motion. After understanding the working mechanism, students participated in assembling and coding their own line-following robots. A mini-race was conducted to test their creations, which added an element of excitement and healthy competition to the session.



Day 5 (9th May 2025): Do It Yourself - Internet of Things (IoT)

Venue : IDEA Lab

Trainers : Students from CSE(DS)

The fifth day introduced students to the rapidly evolving world of IoT (Internet of Things). The session covered real-life applications and projects like a Seatbelt Indicator System using LED and Buzzer and Obstacle Range Detection for Smart Parking using Ultrasonic Sensors. Students were guided on basic Arduino programming and were divided into teams for a mini-contest on innovative smart classroom ideas. They also explored product design aspects for IoT-based solutions, enhancing both their technical and creative thinking skills.



Day 6 (12th May 2025): Mobile App Development

Venue : IDEA Lab & Data Science Lab

Trainers : Students from CSE(DS)

Participants were introduced to Mobile Application Development through simple yet impactful projects like creating a Calculator App and a Music Player App. The instructors explained the fundamentals of app interfaces, user interaction, and logic flow. Students developed their own basic apps under guidance, gaining exposure to software development and the mobile technology industry.



Day 7 (13th May 2025): Circuit Design and PCB Building

Venue : IDEA Lab & Class Room 218, Dept. of EEE

Trainers : Students from EEE department

This session began with an explanation of how breadboards work, followed by the concepts of series and parallel connections. Students calculated the total resistance for combinations and connected LEDs on breadboards accordingly. The session progressed to using Proteus 8 software for circuit design and simulation, culminating in a hands-on activity where students created circuits with push buttons and buzzers. The day ended with a demonstration on DIY PCB techniques and soldering basics, providing students a practical understanding of electronics assembly.



Day 8 (14th May 2025): Web Development

Venue: IDEA Lab & Data Science Lab

Trainers : Students from CSE(DS)

Students were introduced to Web Development fundamentals including HTML tags, webpage structure, and form creation. They built their own simple web pages and forms, leading up to designing their first Portfolio Website. The interactive session helped students understand how websites work and how developers structure digital content online. They also got to preview and share their creations with peers, boosting their confidence in coding.



Day 9 (15th May 2025): Scratch Programming

Venue: Data Science Lab

Trainers: Students from CSE (DS)

The ninth day featured Scratch Programming, moving into intermediate-level concepts. Students developed games, quizzes, and animations using Scratch. The drag-and-drop visual programming language enabled students to grasp basic coding logic without syntax barriers. Participants enjoyed creating interactive programs, and a friendly game development contest was held, making it an exciting and fun-filled session.



Day 10 (16th May 2025): Drone Technology

Venue: IDEA Lab

Trainers: Students from Mechanical Engineering



The final day was dedicated to Drone Technology. Students explored the parts and working of drones, followed by a live assembling and dismantling activity. They learned about the roles of motors, propellers, controllers, and sensors in flight operations. The session concluded with a demonstration of drone flying. Certificates and prizes were distributed to all participants, recognizing their enthusiasm and performance throughout the camp.

Outcomes of the Summer Camp

- Provided practical, hands-on exposure to emerging fields such as Robotics, 3D Printing, IoT, Drone Technology, App Development, and Web Development.
- Participants learnt the practical implementation through hands on activities.
- The following projects were done by School students

3D Models, 3D Printing

Smart dust bin

Line follower

Seat belt indicators

Vehicle parking assistance system

Mobile App & Website

Scratch programming

Drone development

Valedictory

The camp concluded on 16/05/2025. Participation certificates were given to all the participants, and a personalized keychain with their name, made in our IDEA Lab, was given as a gift to each participant.



Feedback from Participants

Student Name	How would you rate your overall experience at the camp?	Were the volunteers attentive, supportive and friendly?	How would you rate the organization and scheduling of the camp?	Were there any topics you wish were covered more thoroughly?	Which activity or session did you find most useful or engaging? Why?	Has this camp influenced your interest in STEM/technology/engineering?	What would you like to see improved for future camps? Are there any new activities or topics you would recommend we add?	Please feel free to drop any comments, suggestions or concerns regarding the camp
Saketh Nadendla	5	5	5	No AI good	Scratch	Yes	Physical activities	Thanks so much for conducting these sessions
Kaira Hamilpure	5	5	5	Drones	3D Designing as I loved to make the keychain	Yes	I would like to add the topic Python because I want to learn it	I thank all the teachers / students 😊 for teaching us the basic things that we're gonna learn in future...They gave us a right path to choose
Hardik Reddy Guda	5	5	5	Drone and robotics..	All are good	Yes	Yes. Python and AI and machine learning	Overall special thanks to every one
Laksh Jain	5	5	5	Web page design	Drone	Yes	NA	Superb activities. Kids like very much. Keep this up for further summer camp.
Reshika Darsi	5	5	5	Yes	The IOT technology, Web development Because I wanted to do coding and I had a wish that at least once I should get a chance to do coding	Yes	I think so we can learn the same topics but the further information about it	Very interesting and should give sandwiches from next time
Ishanvi Vijay	5	5	5	Yes, a little more explanation on Electricals (grade wise) would be better to understand for them to	HTML & Scratch Programming, as it'll be useful in future.	Yes	Little more hands on experience for students will be helpful.	Thank you for organizing it. Since my daughter missed 2 classes due to sickness I am unable to comment collectively. She was happy though.

				relate what they are studying.				
D K Sreeram	5	5	5	Web development	Drone, because that is my favourite topic	Yes	Seminars by children only about previous day learning or quiz competition	Not only summer camp, we want winter camp also in Dasara vocation
Medhansh Reddy NV	5	5	5	No	I found app development and the robotic sessions.	Yes	Yes. Hope to see more future sessions like this	The summer camp was really informative and innovative. Thanks to the principal, coordinators, and the organisers. Medhansh liked and understood the topics very much.
Shihan S	5	5	5	Everything Good	Drone	Yes	Its OK	Excellent Summer Camp 2025
Devona S	5	5	5	Everything was good	Drone	Yes	Its ok, well planned	Excellent Summer Camp 2025

Conclusion

The 2025 Summer Camp was not just an educational initiative but a transformative experience for every participant and mentor involved. It succeeded in achieving its goal of nurturing future innovators by providing them with a platform to learn, experiment, and imagine. The camp has set a benchmark for future programs aimed at inspiring young minds and building a culture of hands-on, innovation-driven learning. The summer camp was a resounding success, providing students a unique platform to explore technology and innovation under the guidance of young mentors from engineering disciplines. The hands-on, interactive learning environment helped ignite curiosity and foster creative thinking among the participants.