



**DEPARTMENT OF ELECTRONICS AND
TELECOMMUNICATION ENGINEERING**

**COMMUNICA
AY2025-26**



**Hope Foundations
Finolex Academy of Management and
Technology, Ratnagiri.**



DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

In Coordination with

ASENT

presents

COMMUNICA

"Communica: Where Bytes, Words, and Brushstrokes Converge."

AY-2025-26

About FAMT



Finolex Academy of Management and Technology (FAMT) was established in 1996 to impart quality technical education at affordable cost and contribute to the industrial growth of our nation. The academy is approved by All India Council for Technical Education (AICTE), New Delhi; recognized by Directorate of Technical Education (DTE), Government of Maharashtra, affiliated to University of Mumbai, and accredited with B++ Grade by National Assessment & Accreditation Council (NAAC).

Situated on the picturesque coast of western Maharashtra, FAMT is one of the reputed engineering institutes in the region and state. The academy is known for its quality technical education and has a distinct identity in the University of Mumbai for its consistently outstanding results. The academy has received appreciation and many awards from various national bodies.

FAMT focuses on nurturing young technical professionals who are immensely dedicated and adept in their field and strongly believe in fair play, perseverance and harmonious development of mind and personality of our students. Accordingly, the academy takes efforts to offer a vibrant academic ambiance. The academy provides various incentives in the form of scholarships and prizes, and co-curricular and extracurricular platforms to foster leadership, team skills, creativity and entrepreneurial values among students.





Principal's Message

“Education and technology in unison empower us to explore, change, grow and shape the future of humanity.”

Dr. Kaushal K. Prasad

Remarkable progress in engineering has accelerated growth and created the most conducive environment of living ever for human beings in last two centuries. The greatest challenge ahead is realigning engineering with sustainable growth that ensures a secure, healthy and productive environment of living for all. Technical education prepares us to face such challenges posed on the way to growth and set the tune for social change.

FAMT, a dream conceived by our founder president Late Shri P.P. Chhabria, has opened the avenue of technical education for students from Konkan. The visionary leadership of our president, Mrs Aruna Katara is inspirational in pursuing our aim to be the centre of excellence in the field of technical education. FAMT was established with a vision to nurture professionals in tune with global trends, equipped with engineering knowledge, skills, and creativity; who will contribute in technological advancement of the nation. To accomplish its vision, the academy has launched six undergraduate and two post graduate programmes. The institute offers quality education with excellent infrastructure at affordable cost. Inculcating the culture of play hard and play fair among our students, FAMT has facilitated dream of many engineering aspirants who are now successful professionals and entrepreneurs contributing across globe. Relentless efforts of our faculty and students have earned recognition to the institute in University of Mumbai and across Konkan.

In our goal to nurture outstanding technocrats, holistic development of students takes precedence at the institute. Therefore, the institute offers a vibrant academic ambience with excellent amenities, robust training with industry collaborations and student-centered activities on campus to promote professional and personal growth of students. I am confident that the learning experience at FAMT will help students in exploring and fostering their potential to face challenges of global industry. I welcome and offer you my best wishes for enriching learning experience at FAMT.

HoD's Message



"Embark on a journey to excellence in electronics and telecommunication engineering with collective exploration."

Dr. Sharada V. Chougule

Welcome to the vibrant community of the Electronics and Telecommunication Engineering Department! As the Head of the department, it is my pleasure to guide and inspire our students through a dynamic and evolving educational journey. Electronics and Telecommunication Engineering Department is committed to nurturing a learning environment that not only imparts technical excellence but also encourages innovation and creativity. With a focus on the latest trends in electronics and telecommunication, department aim to equip our students with the skills and knowledge needed to flourish in an ever-changing technological landscape. I invite you to explore the emerging trends in telecom technologies, collaborative learning experiences and diverse opportunities that define our department.

Let's explore and pursue excellence in the realm of electronics and telecommunication engineering together.

Message from the Committee

"Embrace the unknown, for it is where opportunities are born and greatness is achieved."

Dear Readers,

We are thrilled to present the second edition of our department magazine "COMMUNICA", a labor of love brought to life by the dedicated members of the magazine committee. This magazine is a testament to the passion, creativity, and collective effort that define our college community.

In these pages, you will find a diverse tapestry of voices, perspectives, and talents. It reflects the spirit of our college, where students come together to learn, grow, and leave their mark on the world.

Each article, photograph, and artwork encapsulates the essence of our college journey, from the challenges we've overcome to the triumphs we've celebrated. It's a tribute to our shared experiences, both inside and outside the classroom.

We hope this magazine serves as a source of inspiration, information, and entertainment. It's a platform for our voices to be heard, our stories to be shared, and our dreams to be celebrated.

As we embark on this exciting new venture, we extend our heartfelt gratitude to everyone who contributed and supported us along the way. We take this opportunity to express our heartfelt thanks to Dr. Sharada V. Chougule (HOD EXTC) to entrust the responsibility to us to bring out this issue, Prof. Girish Bhide faculty Co-ordinator for her constant bolstering. Together, we have created something special that will be a cherished part of our college's legacy.

We invite you to dive into the pages of this magazine and join us in celebrating the vibrant tapestry of our college life. This is just the beginning of a journey filled with countless more stories to tell and memories to make.

Thank you for being a part of our inaugural edition. We can't wait to see where this adventure takes us next.

**Happy Reading!!
Warm regards,**

**Editor in-Chief
Paras Naik
and The entire Editorial committee.**

About Department



The Department of Electronics and Telecommunication Engineering was established in 2008 affiliated to University of Mumbai. Since its commencement, the primary objective of the department has been to develop competent professionals who will be able to contribute effectively to the advancing electronics & telecommunication technologies.

The curriculum a broad coverage to all the areas of Electronics and Telecommunication Engineering to give a strong foundation on various courses such as Digital Systems Design, Analog and Digital Communication, Electronic Devices and Circuits, Antenna and Electromagnetic Theory, Digital Signal and Image Processing, Microcontrollers, VLSI Design, Microwave and RF Engineering, Mobile and Satellite Communication, Computer Networks etc.

The students are also provided an opportunity to choose Department Level Optional Courses to focus on their identified areas of interest such as Data Compression and Cryptography, IT Infra and Security, Cloud Computing and Security, Internet Communication Engineering, 5G technology.

The department has a good academic culture and conducive working environment for teaching learning and student activities. The faculty members are well qualified, dedicated, and experienced, with strong commitment to engineering education and excellence in teaching-learning process.

Department has nine well-equipped labs with state-of-the-art equipment and software to satisfy the diverse needs of curriculum, fostering hands-on learning and cutting-edge exploration in their respective fields.

The department hosts its own student association, ASENT (Association of Students of Electronics and Telecommunication Engineering), along with the IETE Student Forum (ISF). These platforms empower students to organize technical events, competitions, seminars, and field trips under the guidance of faculty members. Department organises industrial training and visits for students to get aware of industry requirements

Department aspires the overall growth of students through various co-curricular and extra-curricular activities. The qualities inculcated in students make them not only good engineers but also good human beings.

VISION & MISSION

Vision-

To develop competent professionals who will be able to contribute effectively to the advancing electronics & telecommunication technologies.

Mission-

M1	To provide quality education through practical knowledge and technical skills.
M2	To strengthen industry interaction to meet current and future trends.
M3	To inculcate teamwork spirit, leadership qualities and human values.

Program Educational Objectives (PEO)

PEO 1	Integration of knowledge	Integrate fundamental knowledge in mathematics & basic engineering sciences to solve real life technical problems.
PEO 2	Implementation and testing	Train students to understand the concepts of simulation, synthesis, implementation and testing to create and analyze different projects in the various fields of Electronics & Telecommunication engineering.
PEO3	Ethics and Human values	Nurture students for effective communication, cultured mannerism, ethical values, and teamwork and entrepreneurship skills.
PEO4	Professional development	Encourage professional development including higher education to produce graduates who will pursue lifelong learning.

Program Specific Outcomes (PSO)

PSO1	Utilization of Domain specific knowledge	Students will be able to showcase knowledge gained in the domains of communication engineering, signal processing, RF/microwave engineering, semiconductor technology, digital and embedded systems.
PSO2	Awareness and adaptability to recent trends	Gain awareness regarding design skills, software packages and telecom standards.

FACULTY MEMBERS



Dr. Sharada U. Chougule (Professor and Head)

Dr. Girish G. Bhide (Associate Professor)

Prof. Giri S. Kulkarni (Associate Professor)

Dr. Suhasini S. Goilkar (Associate Professor)

Dr. Amol R. Sutar (Assistant Professor)

Prof. Mansi S. Kolwankar (Assistant Professor)

Prof. Sujay D. Mainkar (Assistant Professor)

Prof. Neha S. Sakhalkar (Assistant Professor)

Prof. Vinayak D. Chavan (Assistant Professor)

Dr. Vijay M. Galshetwar (Assistant Professor)

Prof. Gauri S. Bhosale (Assistant Professor)

Dr. Saurabh S. Athalye (Assistant Professor)



Staff Member

Mr. Sanket Dudwadkar



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ARTICLES

Report on IoT-Enabled Precision Irrigation and Plant Health and Management System

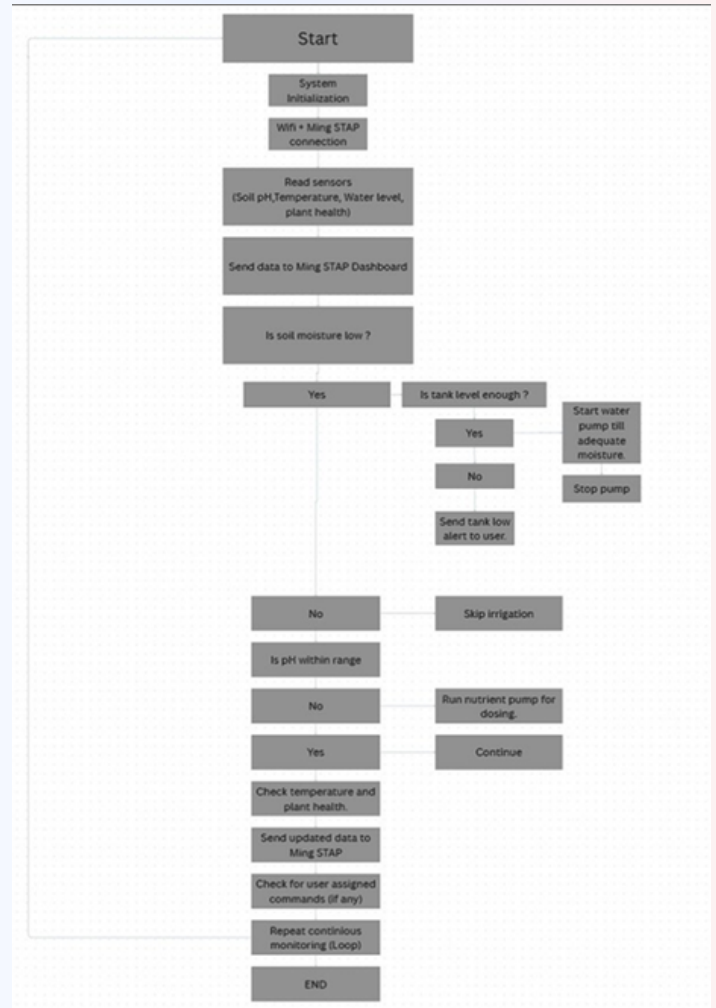
By - Rutvij Arun Sonar, Prattyancha Prabodh Shembekar, Sanika Mahesh Tendulkar, Aryan Sandesh Salvi



ABSTRACT

Usually farmers are not able to monitor parameters like temperature, humidity, soil-moisture etc which play important role in determining plant health. This can lead to diseases in plants and can affect the final produce negatively. To tackle this problem, we are developing an IoT based irrigation system capable of monitoring above parameters with help of various sensors. The collected data is analyzed and irrigation and nutrient dosing process is activated accordingly. The data is collected continuously and can be displayed on various devices using IoT platform like Blynk. The entire process automates irrigation and monitoring thus reducing the risk of diseases and help farmers in producing quality yield.

FLOWCHART



CONCLUSION

This project Demonstrates an efficient sensor based smart Irrigation system that optimizes water usage and provides practical, scalable solution for sustainable and modern agriculture. By integrating smart sensors and cloud-based platforms like Blynk.

Report On

RESCUE AQUATIC COMPANION : Working of Rescue Aquatic Companion System

By - Raj Rajendra Pawar, Prasad Vitthaldas Vishwasrao, Sandesh Shivdev Wakade, Sakshi Babu Palekar

ABSTRACT

The Rescue Aquatic Companion is an innovative and intelligent rescue boat designed to assist in critical water emergencies such as drowning incidents, floods, and aquatic accidents. The system is powered by an ESP32 microcontroller, which efficiently manages navigation, communication, and rescue operations. It supports both manual control using a joystick through NRF24L01 wireless communication and automatic navigation using GPS and a digital compass for precise movement. The integration of a GSM module enables real-time emergency alerts by sending the boat's location to rescue teams, ensuring faster response. An ESP32-CAM provides live video streaming, allowing operators to monitor victims and surroundings effectively. The boat is driven by high-power DC motors, ensuring stability and strong propulsion even in rough water conditions. This project offers a low-cost, portable, and reliable solution for aquatic rescue, significantly reducing risks to human rescuers and improving the efficiency and speed of life-saving operations.

WORKING

This project is designed to assist in water rescue operations and provide real-time monitoring and control of a rescue boat. The system mainly consists of four parts: ESP32 microcontroller, NRF24L01 wireless communication, GPS & GSM modules, and ESP32-CAM for live streaming. First, the ESP32 acts as the main controller of the system. It receives control signals and manages navigation, communication, and motor operations. The boat can be controlled manually using a joystick connected to an Arduino Nano. The joystick movements are transmitted wirelessly through the NRF24L01 module to the ESP32 on the boat. The NRF24L01 receiver communicates with the ESP32, allowing real-time remote control of the boat's movement such as forward, backward, left, and right. Once the ESP32 receives commands, it controls the motors through BTS7960 motor drivers.



CONCLUSION

The system provides real-time control, quick emergency response, and remote monitoring, making it highly useful for water rescue operations. It ensures faster action, reduces risk to human rescuers, and improves safety during aquatic emergencies, floods, and disaster situations.

Report On

Smart Health Monitor: Heartbeat and OxygenLevel Tracking System.

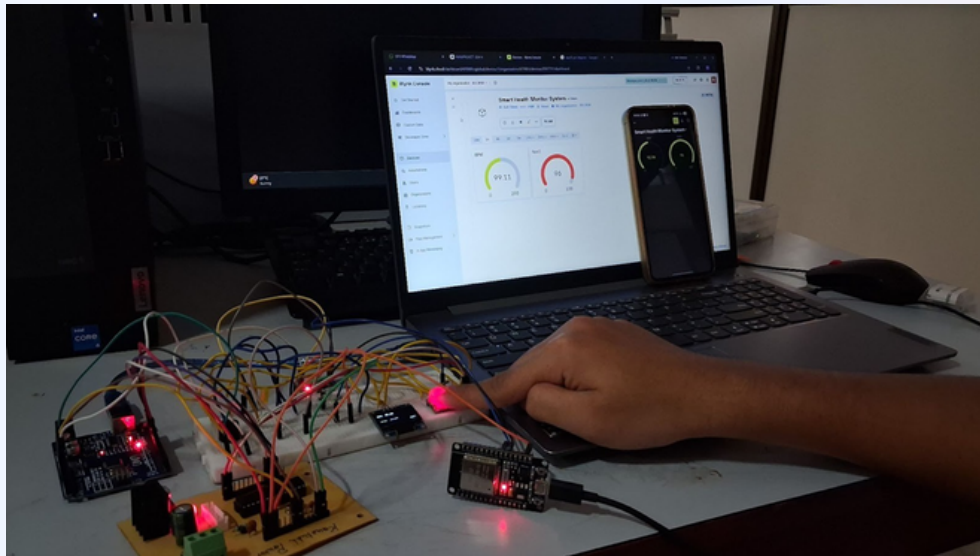
By - Kaustubh Shailesh Pawar, Varad Vivek Phadke, Kharanshu Ashok Randive, Parth Vijay Sawal

ABSTRACT:

The Smart Health Monitoring System is an embedded system designed to measure vital health parameters such as heart rate and blood oxygen level (SpO₂) using the MAX30100 sensor. The system uses an ATmega328 microcontroller to process sensor data and display real-time values on an OLED display. A buzzer and LED are used to alert abnormal conditions. The system provides a compact, low-cost, and portable solution for continuous health monitoring. This project demonstrates the application of embedded systems in healthcare and real-time monitoring.

WORKING:

This project is designed to measure Heart Rate (BPM) and BloodOxygen Level (SpO₂) and display the data both locally and on the cloud for remote monitoring. The system mainly consists of four parts: Sensor, Arduino UNO, ESP32, and the Blynk IoT platform. First, the MAX30100 / MAX30102 sensor is used to measure physiological parameters. When a user places their finger on the sensor, it emits infrared and red light into the skin. Based on how much light is absorbed by the blood, the sensor detects variations caused by blood flow. These variations are processed internally to calculate heart rate (in beats per minute) and oxygen saturation (SpO₂ percentage). The sensor communicates with the ArduinoUNO (ATmega328) using the I2C protocol (SDA → A4, SCL → A5). The Arduino continuously reads the sensor data and processes it.



CONCLUSION:

The system follows a clear data flow as Sensor → Arduino → ESP32 → Cloud → Mobile App. It provides real-time monitoring, instant alerts, and remote access, making it useful for home healthcare, hospitals, and elderly monitoring systems.

Report On

IoT Based Smart Fall Detection and Response System

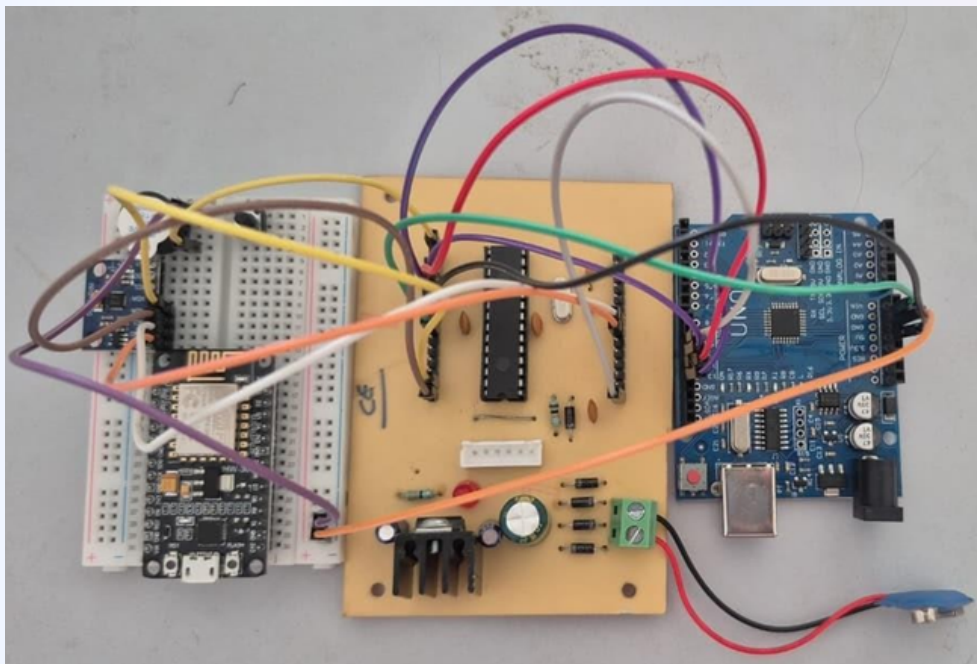
By - Druhi Milind Phatak, Shriya Prabhat Sawant, Alfiya Zahir Solkar

ABSTRACT

The IoT Based Smart Fall Detection System is an embedded system designed to detect sudden falls and provide immediate alerts. The system uses an ATmega328 microcontroller along with a motion sensor (MPU6050) to continuously monitor body movement. When a fall is detected, the system activates a buzzer for local alert and sends data to the cloud using the ESP8266 WiFi module. The data can be monitored remotely using an IoT platform such as ThingSpeak. This system provides a low-cost, reliable, and real-time solution for elderly and patient safety. It demonstrates the application of embedded systems and IoT in healthcare monitoring.

WORKING:

This project is designed to detect human falls and send alerts both locally and remotely. The system mainly consists of three parts: Sensor, ATmega328 microcontroller, and ESP8266 WiFi module. First, the MPU6050 sensor continuously monitors body motion by measuring acceleration and orientation. When a person wears or carries the device, the sensor tracks normal movement patterns. If a sudden change in acceleration or abnormal movement is detected, the sensor sends data to the ATmega328 microcontroller. The microcontroller processes this data and compares it with predefined threshold values to determine whether a fall has occurred.



CONCLUSION:

The IoT based fall detection system is an effective solution for improving safety and emergency response. It provides quick alerts using both local and remote systems. The system is affordable, easy to use, and suitable for real-time monitoring. Future improvements can include GPS tracking and mobile app integration for better functionality.

DRAWINGS





By- Lad Atmaya Umesh
TE EXTC



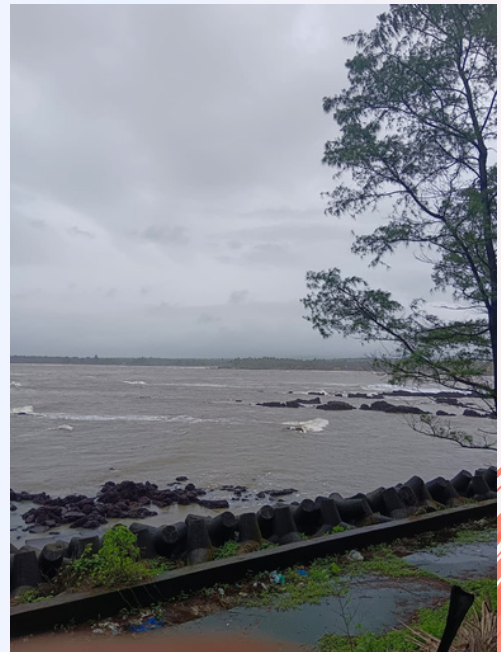
RANGOLI



MS. Sanika Tendulkar
TE EXTC

PHOTOGRAPHY

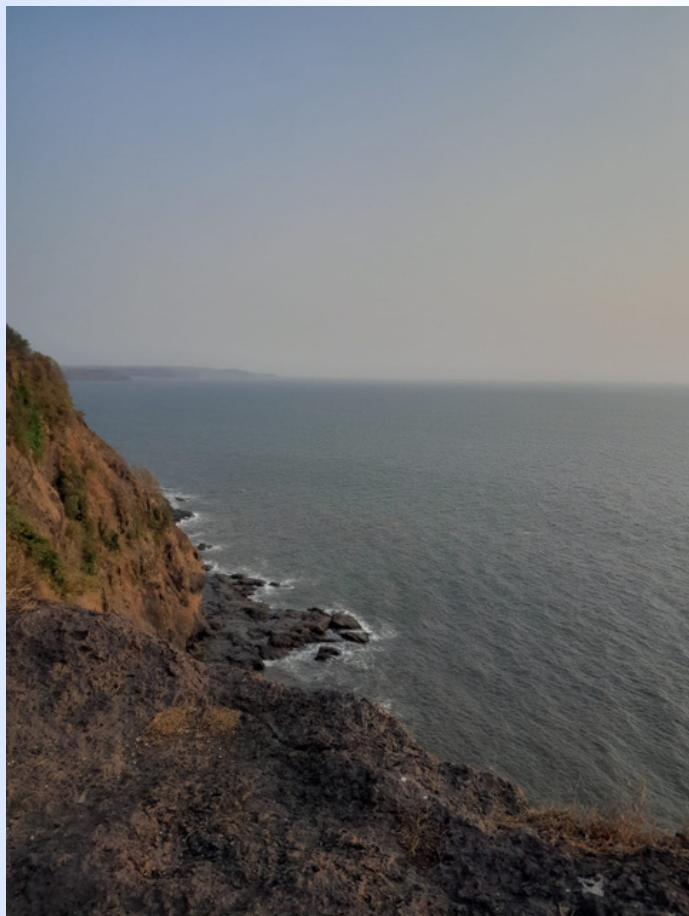




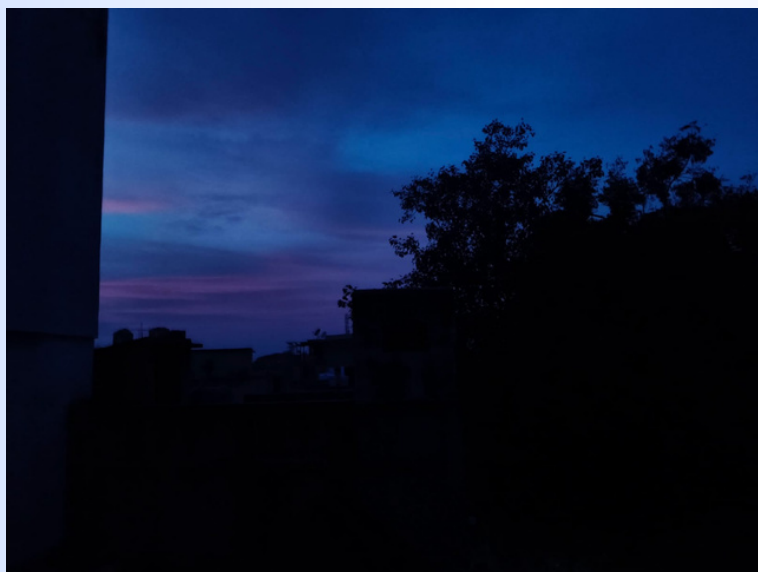
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By-Shrawani Joshi
TE EXTC



By : Prattyancha Shembekar
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By : Ritesh Bhise
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