

Bapuji Educational Association (Regd)
Bapuji Institute of Engineering & Technology,
Davangere.
Computer Science and Engg. Department.

A Report on

Green Campus Initiative

(May 2022 to April 2023)

Faculty Coordinator

Gangadharappa S

Assistant Professor

Program Coordinator

Dr. Nirmala C R

Professor and Head

Student Coordinators:

1. Sindhu R Pawar (4BD19CS095)
2. Karuna C Kolar (4BD20CS044)
3. Sunil N H (4BD21CS163)

1. Green Practice:

- To create awareness regarding environmental policy amongst the students.
- To Use Solar Energy on College Campus by installing Solar Lamps and Solar water Heaters in Girls and Boys hostels.
- To sensitize the students and staff regarding the use of drinking water properly for which, we have provided purified (RO purifying system) drinking water facilities on the campus.
- To bring in use the 'Rain Water Harvesting' on the campus.
- To use the solid waste through vermin-compost on the campus and use it as a fertilizer.
- To reduce the 'sound pollution in the campus, we have built the seating arrangements in the shade of trees in our campus.
- To use 'Use me' Dry and Wet dust bins in the college campus so as to keep college campus clean and tidy.
- Tree plantations.
- Students are advised frequently to turn off Systems, lights and Fans when they are unused.
- Students are encouraged to select the projects on waste management.

2. Projects:

Following are the few list of projects assigned to students to reach our green campus initiative goals.

1. Safety Gadget: An IoT based security system (2022-2023)

USN	Student Name	Guides
4BD19CS041	Krutika Malgi	Dr. Naveen Kumar K R Prof. Arjun H
4BD19CS006	Aditi R Pillai	
4BD19CS064	Priyanka A.R	
4BD19CS078	Sandhya N	

Abstract:

System works on how to control home apparatuses, safety, and security systems utilizing GSM innovation by utilizing a cell phone. We will likewise show that we can control the apparatuses even without a phone by sending an ordinary call. The favorable position of utilizing GSM innovation is that we can handle home appliances from any place in the world. This system permits the proprietor to control the appliances and to get a feedback status of the home apparatuses by sending calls just as through a portable application. For the home security system, we are utilizing an antitheft announcing system that will report the proprietor by sending a message and ringing a call. Likewise, for the security system, when fire or gas spillage is expected to occur, it will also

report the proprietor by sending a call. Subsequently, by utilizing GSM innovation, it gives remote access to the gadgets to be controlled.

2. An AI approach to detect abrupt concept drift in disease diagnosis system (2022-2023)

USN	Student Name	Guides
4BD19CS043	Lakshmi HP	Prof. Abdul Razak M S
4BD19CS045	Manjunath JM	Prof. Madhu Hiremath
4BD19CS077	Sandesh V C	
4BD19CS079	Sanjana B M	

Abstract:

The rapid rising of artificial intelligence (AI) and Internet of Things technologies leads to the accumulation of abundant communication data without being processed on time, which causes potential threat for smart city. How to effectively leverage these data for anomaly detection has become an increasingly popular research field as it is a fundamental aspect of cyber security for smart city services. The existing methods often focus on either static data for anomaly detection or streaming data without considering the influence of poor detection accuracy caused by concept drift phenomenon. In this paper, we concentrate on the anomaly detection problem of smart city services and distinguish different anomalies of communication in an effective way, which is aimed to protect data privacy of users. Then we propose an innovative concept drift adaptive method to improve the accuracy of anomaly detection, which fully considers time influence to change the sample distribution along timeline. Furthermore, we present an AI based Improved Long Short-Term Memory (I-LSTM) neural network that adds time factor and employs a novel smooth activation function, which can enhance the performance of multi-classification for anomaly detection. Finally, our proposed methods are evaluated with a real communication dataset. Extensive experimental results indicate that I-LSTM achieves the highest values on all indicators. This demonstrates the effectiveness of our proposed methods that can offer excellent quality of service for smart city, which is a perfect fusion of artificial intelligence and communication security.

3. Traffic violation proctoring system:Helmet and triple riding detection (2022-2023)

USN	Student Name	Guides
4BD19CS071	Roja E N	Prof. Gangadhar S
4BD19CS075	Sahana S M	Prof. Jagadish A N
4BD19CS083	Shalini K R	
4BD19CS103	Soundarya P	

Abstract:

Helmet detection using wireless communication complements sensor-based pedestrian detection in driverless and conventional cars. This fusion improves road-safety particularly in obstructed visibility and bad weather conditions. This paper seeks developing such wireless-based vehicle-to-pedestrian (V2P) collision avoidance using energy-efficient methods and non-dedicated existing technologies namely smartphones (widespread among pedestrians and drivers), cellular network and cloud. Our roadsafety mobile app can be set to driver mode or pedestrian mode. This app frequently sends vehicle and pedestrian geolocation data (beacons) to cloud servers. Cloud performs threat analysis and sends alerts to road users who are in risky situation. However, constant pedestrian-to-cloud (P2C) beaconing can quickly drain smartphone battery and make the

system impractical. We employ adaptive multi-mode (AMM) approach built on situation-adaptive beaconing. AMM reduces power consumption using beacon rate control while it keeps the data freshness required for timely vehicle-to-pedestrian collision prediction. AMM runs on cloud servers and commands the mobile apps to change P2C beaconing frequency according to collision risk level from the surrounding vehicular traffic. Cityscale mobility simulation demonstrates energy efficiency of our approach. We evaluate battery lifetime according to geolocational variations over the city map. Results show that road-safety system imposes a small mean overhead on smartphone battery's state-of-charge. Furthermore, our evaluation of computation and network load shows feasibility of running such road-safety systems on conventional cellular networks and cloud providers. We use server-side prototype experiment to estimate minimum cloud resources and cloud service costs needed to handle computation of city-scale geolocation data.

4. Blockchain Enabled E-Commerce For Agriculture Products (2022-2023)

USN	Student Name	Guides
4BD19CS061	Prathik M R	Prof. Radhika Patil
4BD19CS050	Mohammed Banda Nawaz	Prof. Supreetha S M
4BD19CS020	Chaitra Patgar	
4BD20CS406	Rubeen Noolkar	

Abstract:

In agricultural sector, farmers in rural areas faced major problems because of illiteracy. They cannot take the advantage of internet to access the information related to farming. The information represented in icons will help the farmers to take the important decisions. Also there will be additional benefit to farmer as there is speech based interaction in Indian language with icons. According to UNESCO report, 64% population in India cannot use the internet due to lack of technical knowledge. Here, we are extending the approach from computer devices to small mobile devices application.

5. Multi Traffic Scene Perception based on Supervised Learning (2022-2023)

USN	Student Name	Guides
4BD19CS076	Sampath Kumar P	Prof. Shilpa K C

Abstract:

This fusion improves road-safety particularly in obstructed visibility and bad weather conditions. This paper seeks developing such wireless-based vehicle-to-pedestrian (V2P) collision avoidance using energy-efficient methods and non-dedicated existing technologies namely smartphones (widespread among pedestrians and drivers), cellular network and cloud. Our roadsafety mobile app can be set to driver mode or pedestrian mode. This app frequently sends vehicle and pedestrian geolocation data (beacons) to cloud servers. Cloud performs threat analysis and sends alerts to road users who are in risky situation. However, constant pedestrian-to-cloud (P2C) beaconing can quickly drain smartphone battery and make the system impractical. We employ adaptive multi-mode (AMM) approach built on situation-adaptive beaconing. AMM reduces power consumption using beacon rate control while it keeps the data freshness required for timely vehicle-to-pedestrian collision prediction. AMM runs on cloud servers and commands the mobile apps to change P2C beaconing frequency according to collision risk level from the surrounding vehicular traffic. Cityscale mobility simulation demonstrates energy efficiency of our approach. We evaluate battery lifetime according to geolocational variations over the city map. Results show that road-safety

system imposes a small mean overhead on smartphone battery's state-of-charge. Furthermore, our evaluation of computation and network load shows feasibility of running such road-safety systems on conventional cellular networks and cloud providers. We use server-side prototype experiment to estimate minimum cloud resources and cloud service costs needed to handle computation of city-scale geolocation data.

6. IoT based animal tracking system (2022-2023)

USN	Student Name	Guides
4BD19CS091	Sinchana B Gowdar	Prof. Vishwanath V K
4BD19CS095	Sindhu R Pawar	
4BD19CS097	Siri M Bankapur	Prof. Shryavani K
4BD19CS096	Siri B A	

Abstract:

There is an increasing number of issues regarding various animal health condition and movements. And in recent era, animals have become an integral part of a human life. And hence, an animal health monitoring and tracking system using ZigBee module is developed. ZigBee Technology is more and more adopted in a wide range of applicative scenarios. To track the health of an animal, sensors such as the temperature sensor, heart rate sensor, pulse rate sensor and the respiratory sensor are used. The ZigBee module would be connected to a Graphical User Interface (GUI) to show the digital data. With the advancement in technology and existence of internet, we practically can connect any device to internet and implement the concept of IOT. Index Terms ZigBee, RFID, Monitoring, Animal health, Detecting, IOT etc.

Department coordinator

Program coordinator