

**Universal Engineering College
Department of Computer Science and
Engineering**

GIGA CHRONICLES

21-22



Vision ●

Empower universally equipped computational technocrats having innovative entrepreneurial skills with holistic values.



Mission ●

- With well experienced faculty members and excellent infrastructure, provide way to equip universally acclaimed computational technocrats.
- With institute industry interaction, develop apt skill in entrepreneurship innovativeness.
- Provide value based education to meet the technical and computational needs of the society



Program Specific Outcomes ●

PSO1: Ability to provide refined solutions based on expert knowledge in evolutionary change in computing environment and entrepreneur practises to the various needs of the society.

PSO2: Impart skills to solve problems in the area of computer programming and appraise environmental and social issues with ethical sustainable solutions .

PSO3: Disseminate wider knowledge of various latest domains to analyse and determine research gaps and hence provide solutions by new ideas and innovations.



Program Educational Objectives ●

- **PEO1:** Inculcate ability to analyse the computer science and engineering problems by assimilating technical knowledge .
- **PEO2:** To groom the students to be adaptable to the ever changing technological challenges and career opportunities.
- **PEO3:** To make students proficient in fundamental knowledge and engross them in pursuing higher education and research oriented activities.

MEET OUR TEAM



Munnebha Mohyiddeen
Asst.pro CSE



Chinju Paulose
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S8 CSE



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S4 CSE



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S6 CSE



Shabna P S
S2 CSE

We would like to express gratitude to all those who have contributed to the production of this year's magazine. Without your support, this would not have been possible. We would like to thank our editorial team for their hard work and dedication in bringing together this wonderful publication. We also extend our appreciation to Our, Principal Dr. Jose K. Jacob, Dr. Sreeraj R H.O.D (CSE), magazine incharges Ms. Muneebha mohyiddeen and Ms. Chinju Paulose, who have contributed their valuable insights and expertise. We are grateful to our staffs and students, who have submitted their articles, artwork, and photographs, which have added color and vibrancy to this magazine.

"GIGA CHRONICLES" (2021-22).

MESSAGE FROM HEAD OF THE DEPARTMENT



Dear Students, Faculty and Readers,

As we embark on the academic year 2021-2022, I am filled with pride and optimism for the future of our Computer Science and Engineering department. The past year has been a testament to the resilience, innovation, and dedication of our students, faculty, and staff.

In 2021, we witnessed remarkable advancements in technology and the crucial role that computer science plays in addressing global challenges. Our department has continued to lead the way, with groundbreaking research and innovative projects in artificial intelligence, machine learning, cybersecurity, and data science. These efforts have not only garnered recognition but have also contributed significantly to the broader scientific community.

Our faculty members have gone above and beyond to ensure that our students receive the highest quality education, adapting to new teaching methods and providing unwavering support. Their commitment to nurturing young minds and fostering a culture of curiosity and creativity is truly commendable.

To our students, your perseverance and enthusiasm are the driving forces behind our success. As you navigate the ever-evolving landscape of computer science, I encourage you to embrace every challenge as an opportunity to learn and grow. Your passion and hard work will undoubtedly shape the future of technology.

This magazine is a celebration of our collective achievements and a showcase of the incredible talent within our department. It highlights the technical brilliance, collaborative spirit, and innovative mindset that define Universal Engineering College.

I extend my heartfelt gratitude to everyone who contributed to this magazine and to those who have supported our department's journey. Your efforts are invaluable and greatly appreciated.

Let us continue to inspire, innovate, and excel as we move forward into another exciting academic year.

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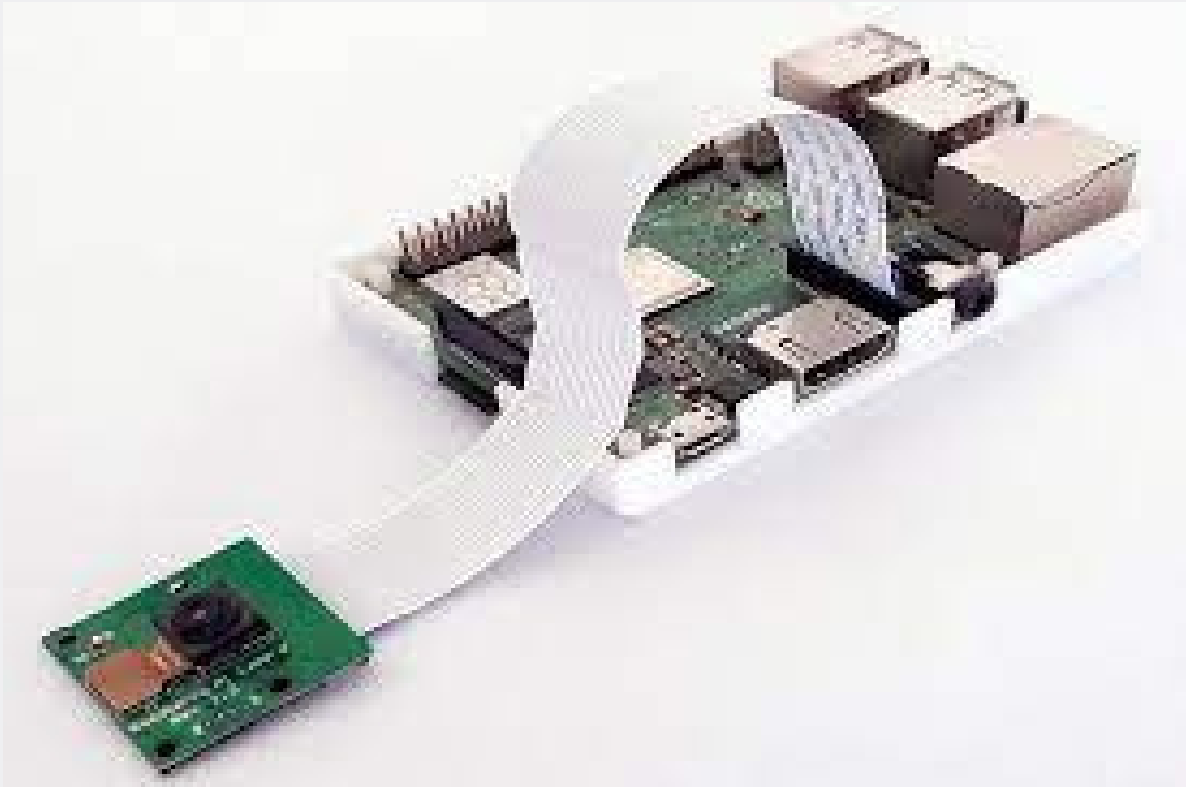
Fruit classification system using multiclass SVM classifier



The fruit grading by visual inspection suffers from the problem of inconsistency in judgment by different persons. There is a need for an automatic fruit classification machine replacing the expensive human labor with a smart fruit quality classification system. This study proposed a practical real-time smart fruits quality grading system classifying by appearance and internal flavor factors in order to decrease human labor cost in fruit industry. The proposed system applies color image processing techniques for the computation of the fruits appearance features and the near-infrared spectroscopy analysis methods for the estimation of internal flavor factors. This study also suggests an artificial neural network model in order to be able to classify fruit grading. The proposed ANN model is trained and tested with 1,900 numbers of pears for grading. It has achieved the classification accuracy rate of 97.4% in our experiment

MISHA T M
S8 CSE

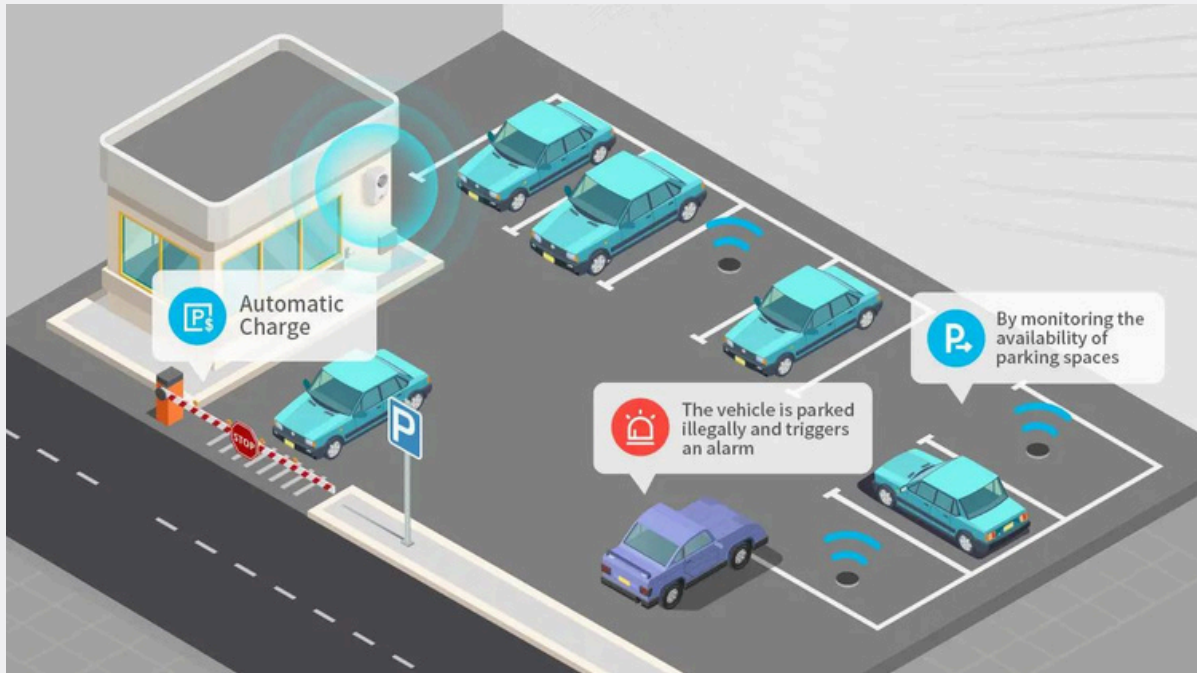
Facial Detection and Recognition using OpenCV on Raspberry pi Zero



In this modern era, security has become a major concern. The amount of criminal activities has increased exponentially over the last three decades. Apart from that, security in places such as airports and railways stations is cumbersome and often ineffective in various cases. The motivation for developing this system was the need for a system to identify suspicious individuals in an time, cost and resource effective manner. In this paper, we discuss a system which consists of a Raspberry Pi Zero connected to a Raspberry Pi camera module, Capacitive touch sensor and OLED display. This system uses Haar Cascade classifier for face detection in an image followed by Local Binary Pattern Histogram for facial Recognition (LBPH). The LBPH algorithm is implemented using OpenCV.

BADARUNNISA T S
S6 CSE

SMART CAR PARKING SYSTEM IN SMART CITIES USING IR



Internet of Things (IoT) plays an indispensable role in bridging the gap between all the day to day things to the networking system, and creates an ease to access all the uninternet things from any distant location. With all the advancement in the technology, finding a particular place to park our automobile becomes an exasperating issue. In our work we have designed a Smart Car Parking System (SCPS) with the help of infrared sensor and a database based on application of lot, which permits the driver to find the proximate parking slot, and gives the number of free places available in that respective parking zone. This ideology mainly focuses on diminishing the time involved in discovering the parking space and also it decreases the unwanted travelling, through filled parking slots in a parking area.

AMAL.V.S
S8 CSE

Real-time Augmented Reality with Occlusion Handling Based on RGBD Images



To handle the occlusion between virtual objects and reality scene, and improve the accuracy of Camera tracking, we adopt a method of computer vision for camera tracking, and a model-based approach for occlusion handling. In this paper, we proposed a robust marker-less AR architecture based on RGBD images

APARNA SHAJU
S4 CSE

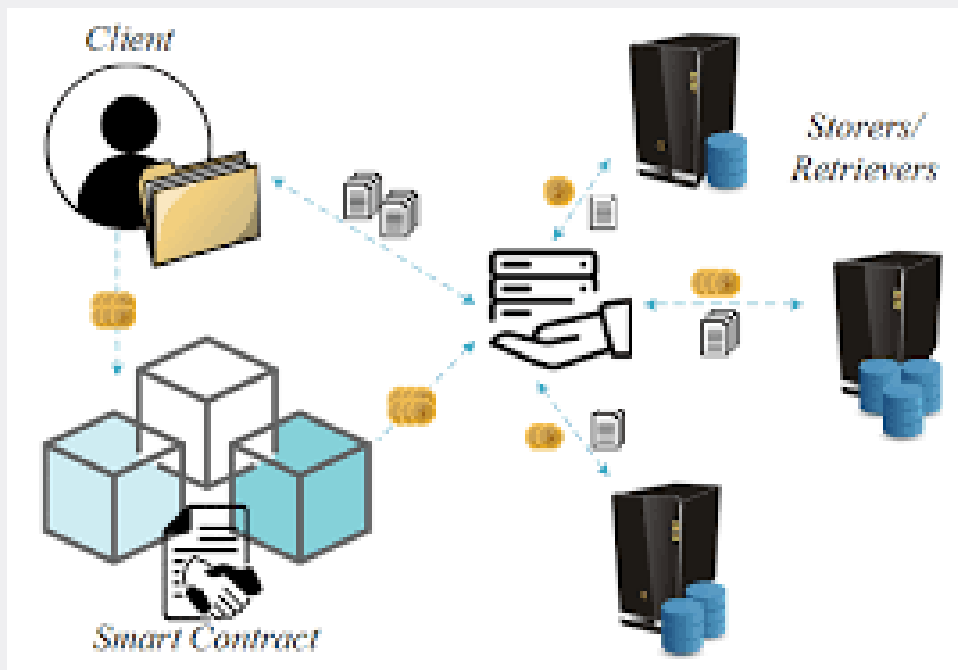
Home Security System using IOT and AWS Cloud Services



Project proposes a security system for the IoT environment that prevents intrusion in Home, Bank, Airports, Offices, University, or any location. The primary goal of the project is to reduce human work by designing and implementing a security system that offers control through a handheld mobile phone and PC. To detect malicious activity or privacy violation, it is an Unauthorized Human Entry Detection system (UHEDS), which detects any intrusion or breach and reports to the homeowner. The project includes an Anomaly based technique for unauthorized entry detection and signature analysis using a face recognition algorithm running on AWS cloud.

NEERAJ K R
S2 CSE

A Blockchain-based Decentralized Data Storage and Access Framework for PingER



This seminar is about a blockchain based data storage and access framework for PingER (worldwide end-to-end Internet performance measurement project) to remove its total dependence on a centralized repository. In the system metadata of the files are stored on the blockchain whereas the actual files are stored off-chain through DHT (Distributed Hash Tables) at multiple locations using a peer-to-peer network of PingER Monitoring Agents. This will provide decentralized storage, distributed processing, and efficient lookup capabilities to the PingER framework.

POOJA K P
S2 CSE

Brain-Robot Interface-Based Navigation

Control of a Mobile Robot in Corridor Environments



This topic is brain-robot interface (BRI)-based control strategy in combination with the simultaneous localization and mapping (SLAM) to achieve the navigation and control of a mobile robot in uncertain environments. The BRI is based on steady state visually evoked potentials, utilizing the multivariate synchronization index classification algorithm to analyze the human electroencephalograph (EEG) signals in such a manner that human intentions can be recognized and motion commands can be produced for the brain controlled robot. The entire system is semi-autonomous since the navigation of mobile robot is commanded by the BRI, and the low-level motion of the mobile robot is autonomous with a designed kinematic controller.

ANEENA K K

S8 CSE

Smart mirror: A time saving and Affordable Assistant



Smart Mirror” is to help save time by helping people save time while also enabling them to update them with current news. This would be achieved by the device as it provides valuable information on the display at a glance, while also acting as a conventional mirror.

MANOJ M
S4 CSE

Image classification and text extraction using machine learning.



Machine Learning is a branch of Artificial Intelligence in which a system is capable of learning by itself without explicit programming or human assistance based on its prior knowledge and experience. In the proposed system, image classification is implemented using Convolutional Neural Network (CNN). The CNN performs better on very large datasets, by overcoming the problem of over fitting. Also, single line text extraction is replaced by multiple line text extraction. Thus, the accuracy of this system can be improved by incorporating a large dataset and increasing the number of epochs. In addition, a trial-and-error methodology is used to determine the number of convolution and pooling layers with the number of nodes in each layer.

NAYANA M

S2 CSE

Detecting Diabetic Retinopathy using DeepLearning



The large population of diabetic patients and their massive screening requirements have generated interest in a computer-aided and fully automatic diagnosis of DR. The current system uses the inception-v3 as their architecture for detecting DR. To automate the diagnosis of DR and provide appropriate suggestions to DR patients, images that have been labelled by the proper treatment method that is required. Deep neural networks, especially convolutional ones, have demonstrated their superiority in image classification tasks. Proposed system uses Ensemble approach for making automatic DR diagnoses.

DEVIKA MADHU
S4 CSE

Application of Convolutional Neural Network in Image Classification

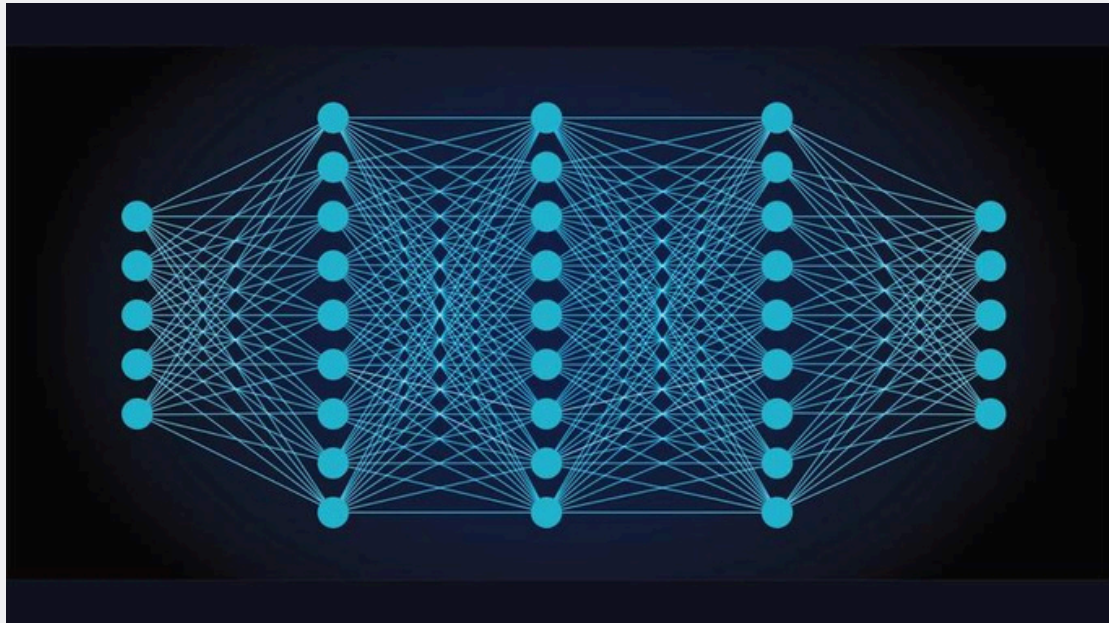


Image classification means that the computer classifies each category of images according to their different characteristics. Compared with the traditional image classification method, the convolutional neural network no longer needs to extract features artificially, but learns features from samples autonomously.

SHABANA K S

S2 CSE

A Smart Methodology for Analyzing Secure E-Banking and E-Commerce Websites



Acquiring sensitive information from the user in some malicious web pages which looks like the legitimate webpage and they do a kind of criminal activity that is known as phishing in the electronic world. An attacker can use this kind of phishing or fraud by using such websites, which is a severe risk to web users for their personal and confidential information. So, in the field of e-banking and e-commerce, this act makes a threat for all webpage users. In this paper mainly discerning the different features of legitimate, suspicious and phishing websites. These features are fed to the machine learning algorithms which are built-in WEKA are used for comparison and to check the accuracy of the algorithm

ABINAV VIJAY P
S8 CSE

VOICE ASSISTANCE FOR VISUALLY IMPAIRED PEOPLE



Visual impairment is one of the big problem in the humankind, those people need some assistance to perform day to day tasks. This paper describes a device to help those people to read environmental messages, words, letters and used in postal letters, daily newspapers, and so on to cope up the social life.

MOHAMED JASAM ABDULSALAM

S2 CSE

Pulse rate checking using smart phone



It is an effective tool to estimate the pulse rate using just a camera from any commercially available smart phone. It does not require any external hardware or any special sensors to measure their pulse and could take a measurement in virtually any place under almost any circumstances.

AKHIL A KRISHNAN

S8 CSE

STARE : AUGMENTED REALITY DATA VISUALIZATION FOR EXPLAINABLE DECISIONSUPPORT IN SMART ENVIRONMENT



STARE deals with the intersection of the Internet of Things (IoT) and Augmented Reality (AR) in making real-time decision-making within smart environments. It emphasizes the opportunities arising from the diverse data generated by IoT, underscoring the imminent mainstream adoption of AR as a tool for ubiquitous data visualization. The integration of AR is depicted as a means to not only visualize but also cognitively and visually bind information to the corresponding physical objects. Recognizing the challenges of efficiently managing and prioritizing this wealth of data for immediate decision-making, the paper introduces the AR decision support framework, STARE. This framework aims to enhance decision-making by associating semantically relevant IoT data and suggestions with the user's focal objects.

**ADHIN KOOTTALA S6
CSE**



