**Project ID: 2024/CS/01/01**

# MEDI-SCAN : Diagnosing Medical Issues Using Scans

A PROJECT REPORT
Submitted By


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**Under the Guidance of**
Dr. Anuradha Taluja

Submitted in partial fulfillment of the requirements for the degree of Bachelor of Technology in Computer Science

to


Department of Computer Science & Engineering
**AJAY KUMAR GARG ENGINEERING COLLEGE, GHAZIABAD**
**DR. APJ ABDUL KALAM TECHNICAL UNIVERSITY, LUCKNOW**


May 24, 2024

Director
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# Declaration

We hereby declare that the work presented in this report entitled "**MEDI-SCAN : Diagnosing Medical Issues Using Scans** ", was carried out by us. We have not submitted the matter embodied in this report for the award of any other degree or diploma of any other University or Institute. I have given due credit to the original authors / sources for all the words, ideas, diagrams, graphics, computer programs, experiments, results, that are not my original contribution. I have used quotation marks to identify verbatim sentences and given credit to the original authors / sources.

I affirm that no portion of my work is plagiarized, and the experiments and results reported in the report are not manipulated. In the event of a complaint of plagiarism and the manipulation of the experiments and results, I shall be fully responsible and answerable.

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# Acknowledgements

Apart from the efforts of all the team members, the section of this project report topic depends largely on the encouragement and guidance of our teachers. We take this opportunity to express our gratitude to the teachers who have been instrumental in the approval of this project topic. I'm grateful to our respected Head of the Department Dr. Anu Chaudhary and Professor Incharge Dr. Rajesh Prasad for allowing me to use the facilities available. We would like to show our greatest appreciation to Dr. Anuradha Taluja and other Faculty members. We cannot thank them enough for their tremendous support and help. They motivated and encouraged use very time while selecting the proper project topic. Without their encouragement and guidance, we would not have been able to select the proper topic.

# Abstract

The prevalence of chest diseases remains a major global health concern, finding innovative approaches for early detection, diagnosis, and preventive health management.

This project introduces a pioneering approach to revolutionize medical image analysis by leveraging convolutional neural networks (CNNs) with transfer learning and integrating large language models (LLMs). Manual analysis of medical images often proves slow, inefficient, and subjective, impeding timely diagnosis and effective treatment. Through the utilization of CNNs with transfer learning, this framework aims to achieve precise medical image classification, thereby enhancing diagnostic accuracy and efficiency. Additionally, the integration of LLMs facilitates the generation of clear descriptions of diagnoses, fostering improved communication between clinicians and patients.

By streamlining the diagnostic process, improving the accuracy of diagnoses, and enhancing communication between clinicians and patients, the project has the potential to revolutionize healthcare delivery. Moreover, the insights gained from this project could pave the way for further advancements in artificial intelligence-driven healthcare solutions, ultimately leading to improved patient outcomes and elevated standards of care.

# EmoScript
# (Emotion detection using ML)

A PROJECT REPORT

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We hereby declare that the work presented in this report entitled “Emo- tion detection using ML”, was carried out by us. We have not submitted the matter embodied in this report for the award of any other degree or diploma of any other University or Institute. I have given due credit to the original authors / sources for all the words, ideas, diagrams, graphics, computer programs, experiments, results, that are not my original contri- bution. I have used quotation marks to identify verbatim sentences and given credit to the original authors / sources.

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# Acknowledgements

I would like to express my deepest gratitude to everyone who contributed to this research on facial emotion recognition. This project explores the advancements in technology that enable the accurate recognition of individuals' feelings, a topic that has long been the focus of substantial research in the context of human-machine interaction. Recognizing that robots can never fully understand human emotions, this research aims to bridge that gap by developing systems that can perceive and interpret emotional states.

The ability to analyze and understand emotions from facial expressions is akin to how we, as humans, interpret the mood of someone we do not know well by analyzing their speech and relying on past experiences. For machines to interact effectively with humans, they must possess similar ca- pabilities to perceive emotions. This research acknowledges the complexity involved in this task, which lies within the broader field of computer vision and specifically involves the challenge of image classification.

Facial expression recognition requires algorithmically assigning labels to images from a discrete set of emotion categories. The research utilized a set of training picture samples, each labeled with a single emotion cat- egory, to develop and refine machine learning methods for facial emotion recognition. This thesis also explores methods for evaluating spoken ut- terances at the semantic and signal levels to identify the user's emotional state, categorizing emotions into seven types: happiness, anger, surprise, fear, disgust, sorrow, and neutral.

The applications of emotion detection are vast and continuously expanding. I am grateful to the contributors who highlighted its use in various fields

various fields, such as customer support, where sentiment analysis helps measure client happiness and proactively address issues. In the healthcare industry, emotion detection plays a critical role in monitoring patient wellbeing and aiding in the diagnosis and treatment of mental health issues. In

educational technology, it enhances learning experiences by personal- izing them to improve understanding and engagement. Additionally, in marketing and entertainment, it provides insights into audience responses, allowing professionals to tailor their approaches effectively.

I extend my sincere thanks to my advisors, colleagues, and all those who provided guidance, support, and valuable insights throughout this research. Their contributions have been instrumental in advancing our understanding of facial emotion recognition and its potential applications in various domains. Keywords: Emotions detection, Face Geometry, FER, NLP.

**Project ID: 2024/CS/01/03**

# COGIQUIX - AI-driven Content Summarization and Quiz Generation Platform

A PROJECT REPORT
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We hereby declare that the work presented in this report entitled "CogiQuix - AI-driven Content Summarization and Quiz Generation Platform", was carried out by us. We have not submitted the matter embodied in this report for the award of any other degree or diploma of any other University or Institute. I have given due credit to the original authors / sources for all the words, ideas, diagrams, graphics, computer programs, experiments, results, that are not my original contribution. I have used quotation marks to identify verbatim sentences and given credit to the original authors / sources.

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# Acknowledgements

Completing this final year project has been a journey filled with challenges, growth, and invaluable learning experiences. We extend our deepest gratitude to those who have contributed to its realization. First and foremost, We would like to express our sincere appreciation to our project supervisor, for their unwavering support, guidance, and expertise throughout every stage of this endeavor. Their insightful feedback, encouragement, and mentorship have been instrumental in shaping the direction and success of this project. Their expertise and support have significantly enriched the quality of this work. We are grateful to our family members for their unconditional love, understanding, and encouragement. Their unwavering belief in us has been a constant source of motivation and strength. Our heartfelt thanks go to our friends and classmates who provided support, encouragement, and camaraderie during the highs and lows of this journey. Their companionship made the challenges more manageable and the successes more meaningful. Lastly, We extend our gratitude to all the individuals, organizations, and resources that have contributed in any way to this project's completion. To everyone mentioned and those inadvertently left out, thank you for being part of this journey and for your invaluable contributions.

# Abstract

In today's digital age, the exponential growth of online video content presents both opportunities and challenges for knowledge acquisition and retention. This project introduces an Automatic Summarization and Quiz Generation Platform tailored for YouTube videos, aimed at enhancing learning efficiency and engagement. Leveraging advanced natural language processing (NLP) techniques, the platform automatically generates concise summaries of video content, providing users with condensed yet comprehensive insights. Furthermore, it incorporates quiz generation functionalities, enabling users to assess their understanding and retention of key concepts presented in the video. The platform's intuitive interface and interactive features facilitate seamless integration into educational settings, online courses, and self-directed learning environments. Through its innovative approach, this platform seeks to empower learners with efficient and effective tools for accessing, digesting, and reinforcing knowledge embedded within YouTube videos.

**Project ID: 24/Computer Science/Cs - 1/GID:- 04**

# Smart Presentation Using Hand Gesture

A PROJECT REPORT
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We hereby declare that the work presented in this report entitled "Smart Presentation using Hand Gesture", was carried out by us. We have not submitted the matter embodied in this report for the award of any other degree or diploma of any other University or Institute. I have given due credit to the original authors / sources for all the words, ideas, diagrams, graphics, computer programs, experiments, results, that are not my original contribution. I have used quotation marks to identify verbatim sentences and given credit to the original authors / sources.

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# Acknowledgements

In the realm of communication, words alone often fail to capture the nuances, emotions, and depth of our thoughts. It's the gestures, those silent yet powerful movements of the hands, that bridge the gap between mere speech and profound expression. Today, as I stand before you, I feel compelled to extend my deepest gratitude for the opportunity to present using this intricate language of gestures.

First and foremost, I wish to express my gratitude to the organizers of this event for providing a platform where diverse forms of communication are celebrated and encouraged. By recognizing the significance of hand gestures in communication, you have paved the way for a richer and more holistic exchange of ideas.

To my esteemed audience, your presence here today signifies not only your willingness to listen but also your openness to embrace different modes of expression. Thank you for lending me your ears and your hearts as I navigate through this presentation using the language of gestures. Your attentive gaze fuels my passion and drives me to deliver my message with sincerity and clarity.

I am indebted to the countless individuals who have dedicated their time and expertise to studying the art of nonverbal communication. From scholars and researchers to practitioners and performers, your invaluable contributions have deepened our understanding of the intricate ways in which gestures convey meaning. It is upon the foundation you have laid that I stand today, humbled by the wealth of knowledge that surrounds me.

My heartfelt appreciation goes out to my mentors and teachers, whose guidance has shaped me into the communicator I am today. Through

patient instruction and unwavering support, you have instilled in me the confidence to express myself authentically through gestures. Your wisdom continues to inspire me as I strive to refine my skills and deepen my connection with others.

I am also grateful to my colleagues and peers, whose constructive feedback and encouragement have spurred me on this journey of discovery. Together, we have shared insights, exchanged ideas, and pushed the boundaries of what is possible through the language of gestures. Your camaraderie reminds me that communication is not just about transmitting information but also about forging meaningful connections.

Last but certainly not least, I extend my deepest appreciation to my family and friends, whose unwavering love and support sustain me through every endeavor. Your belief in me empowers me to pursue my passions and embrace my unique voice, even in the face of uncertainty. I am profoundly grateful for the countless moments we have shared, both in silence and in speech, as we navigate the complexities of life together.

In conclusion, I am honored and privileged to have had the opportunity to present using hand gestures today. As I reflect on this experience, I am reminded of the profound impact that gestures can have on our ability to communicate effectively and connect with one another on a deeper level. May we continue to explore the boundless possibilities of this timeless language, enriching our lives and our relationships along the way.

**Project ID: 24/CS/CS-1/5**

# HAND TALK ASSISTANT

A PROJECT REPORT
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# Declaration

We hereby declare that the work presented in this report entitled "Hand Talk Assistant", was carried out by us. We have not submitted the matter embodied in this report for the award of any other degree or diploma of any other University or Institute. I have given due credit to the original authors / sources for all the words, ideas, diagrams, graphics, computer programs, experiments, results, that are not my original contribution. I have used quotation marks to identify verbatim sentences and given credit to the original authors / sources.

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This is to certify that the report entitled **HAND TALK ASSISTANT** submitted by **Ayush Agarwal (2000270120031), Arpit Agarwal (2000270120026), Anirudh Kumar (2000270120018)** and **Ashish Kumar (2000270120030)** to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree of Bachelor of Technology in Computer Science is a bonafide record of the project work carried out by him under my guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

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# Acknowledgements

First and foremost, we would like to express our deepest appreciation to our project guide, **Ms.Vaishali Deshwal**, for her constant guidance, encouragement, and insightful feedback during the entire project.Her expertise in Deep Learning was instrumental in shaping the direction and quality of our work.

We are grateful to **Ajay Kumar Garg Engineering College** for providing us with the opportunity to undertake this project and for giving us access to the necessary resources and facilities.

# Abstract

Our project uses a Convolutional neural network (CNN) architecture tailored for real-time translation of gestural finger gestures into text. The technology leverages finger gestures as a medium for expressing the 26 letters of the alphabet in American Sign Language (ASL), with each gesture automatically translated into its corresponding text format. The CNN framework is meticulously designed to accurately capture and interpret the intricate nuances of finger movements, enabling seamless and efficient conversion to textual representations. Through the integration of cutting-edge neural network techniques, this system aims to enhance accessibility and communication for individuals utilizing gestural ASL, bridging gaps in language comprehension and fostering inclusivity in diverse linguistic environments.

**Project ID: 2024/CS/CS-1/06**

# BLOCKCHAIN BASED E-VOTING SYSTEM

A PROJECT REPORT
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# Declaration

We hereby declare that the work presented in this report entitled **"Blockchain based E-voting System"**, was carried out by us. We have not submitted the matter embodied in this report for the award of any other degree or diploma of any other University or Institute. I have given due credit to the original authors / sources for all the words, ideas, diagrams, graphics, computer programs, experiments, results, that are not my original contribution. I have used quotation marks to identify verbatim sentences and given credit to the original authors / sources.

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# Acknowledgements

Apart from the efforts of all the team members, the section of this project report topic depends largely on the encouragement and guidance of our teachers. We take this opportunity to express our gratitude to the teachers who have been instrumental in the approval of this project topic. I'm grateful to our respected Head of the Department Dr. Anu Chaudhary and Professor Incharge Dr. Rajesh Prasad for allowing me to use the facilities available. We would like to show our greatest appreciation to Dr. Anuradha Taluja and other Faculty members. We cannot thank them enough for their tremendous support and help. They motivated and encouraged use very time while selecting the proper project topic. Without their encouragement and guidance, we would not have been able to select the proper topic.

# Abstract

Revolutionizing the democratic process, the 'Blockchain-Based E-Voting System' heralds a new era in electoral integrity and transparency. Traditional voting mechanisms often grapple with issues of security, verifiability, and accessibility, eroding public trust in democratic institutions. This pioneering project endeavors to tackle these challenges head-on by leveraging blockchain technology to create a secure, transparent, and tamper-proof e-voting platform.

The electoral landscape is marred by outdated manual systems and susceptibility to fraud, necessitating a paradigm shift towards digital solutions and blockchain innovation. By harnessing the inherent features of blockchain, including decentralization, cryptographic security, and immutability, our e-voting system ensures a trustworthy and auditable voting process.

With concerns over election tampering and voter disenfranchisement on the rise, the adoption of blockchain-based e-voting promises to restore faith in the democratic process. Through a decentralized ledger, every vote cast is recorded transparently and cannot be altered retroactively, guaranteeing the integrity of election results.

Our 'Blockchain-Based E-Voting System' represents a monumental advancement in electoral technology, offering a future characterized by fairness, inclusivity, and trust. By embracing blockchain for electoral management, we pave the way for a democratic renaissance, where every citizen's voice is heard and every vote counts.

**Project ID: 24/CS/CS-1/07**

# LUNG LENS: DEEP LEARNING FOR LUNG CANCER IDENTIFICATION

A PROJECT REPORT
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# Declaration

We hereby declare that the work presented in this report entitled "Lung Lens : Deep Learning For Lung Cancer Identification", was carried out by us. We have not submitted the matter embodied in this report for the award of any other degree or diploma of any other University or Institute. I have given due credit to the original authors / sources for all the words, ideas, diagrams, graphics, computer programs, experiments, results, that are not my original contribution. I have used quotation marks to identify verbatim sentences and given credit to the original authors / sources.

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This is to certify that the report entitled Lung Lens:Deep Learning For Lung Cancer Identification submitted by Manika Agarwal(2000270120063), Bhavya Bansal(2000270120035), Ayush Chaudhary(2000270120032) and Ayush Tyagi (2000270120033) to the APJ Abdul Kalam Technological University in partial fulfillment of the requirements for the award of the Degree of Bachelor of Technology in (CS) is a bonafide record of the project work carried out by him/her under my/our guidance and supervision. This report in any form has not been submitted to any other University or Institute for any purpose.

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# Acknowledgement

Apart from the efforts of all the team members, the section of this project report topic depends largely on the encouragement and guidance of our teachers. We take this opportunity to express our gratitude to the teachers who have been instrumental in the approval of this project topic. I'm grateful to our respected Head of the Department Dr. Anu Chaudhary, for allowing me to use the facilities available.
We would like to show our greatest appreciation to Ms. Kamna Singh and other Faculty members. We cannot think them enough for their tremendous support and help. They motivated and encouraged use very time while selecting the proper project topic. Without their encouragement and guidance, we would not have been able to select the proper topic.

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# Abstract

Lung cancer is one of the most lethal cancer types; thousands of people are infected with this type of cancer, and if they do not discover it in the early stages of the disease, then the chance of surviving off the patient will be very poor. For the suggested reasons above and to help in overcoming this terrible, early diagnosis with the assistance of artificial intelligence procedures is most needed.

Also, it is one of the most common and contributing to deaths among all cancers. Cases of lung cancer are increasing rapidly. There are about 70,000 cases per year in India. Over the past decade, Cancer detection using deep learning models has been a hot topic, especially in medical image classification.

It is worth remarking that CNN models are more advanced at addressing diagnosed diseases such as lung cancers because of the higher performance and ability of the CNN. This web application presents an approach that utilizes a Convolutional Neural Network (CNN) to classify the tumors found in the lung as malignant or benign.

The accuracy obtained through CNN is 99 percent, which is more efficient when compared to the accuracy obtained by the traditional existing systems. This is done by applying the convolutional neural network technique to a data set of lung cancer CT scans.

**Project ID: 24/CS/01/08**

# AvatarCraft : Personalized Avatar Generator

A PROJECT REPORT
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**Under the Guidance of**
Dr. Sonam Gupta

Submitted in partial fulfillment of the requirements for the degree of Bachelor of Technology in Computer Science

to


Department of Computer Science & Engineering
**AJAY KUMAR GARG ENGINEERING COLLEGE, GHAZIABAD**
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May 23, 2024

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# Declaration

We hereby declare that the work presented in this report entitled "Avatar-Craft : Personalized Avatar Generator", was carried out by us. We have not submitted the matter embodied in this report for the award of any other degree or diploma of any other University or Institute. I have given due credit to the original authors / sources for all the words, ideas, diagrams, graphics, computer programs, experiments, results, that are not my original contribution. I have used quotation marks to identify verbatim sentences and given credit to the original authors / sources.

I affirm that no portion of my work is plagiarized, and the experiments and results reported in the report are not manipulated. In the event of a complaint of plagiarism and the manipulation of the experiments and results, I shall be fully responsible and answerable.

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# Acknowledgements

Apart from the efforts of all the team members, the section of this project report topic depends largely on the encouragement and guidance of our teachers. We take this opportunity to express our gratitude to the teachers who have been instrumental in the approval of this project topic. I'm grateful to our respected Head of the Department Dr. Anu Chaudhary, for allowing me to use the facilities available.
We would like to show our greatest appreciation to Dr. Sonam Gupta and other Faculty members. We cannot think them enough for their tremendous support and help. They motivated and encouraged use very time while selecting the proper project topic. Without their encouragement and guidance, we would not have been able to select the proper topic.

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# Abstract

The transformation of real-world images into cartoon-style representations is a challenging task in the domains of computer vision and computer graphics. Existing methods often struggle to produce satisfactory results due to the distinct characteristics of cartoon styles and the limitations of texture-descriptor-based loss functions. In response to these challenges, we present the Deep Cartoonifier, a novel deep learning-based approach for cartoon stylization. Our method utilizes a generative adversarial network (GAN) framework to learn the intricate mapping from photographs to cartoons, employing unpaired datasets for training.

To address the inherent complexities of cartoonization, we introduce two innovative losses: a semantic content loss designed to handle substantial style variations between photos and cartoons, and an edge-promoting adversarial loss aimed at preserving the clarity of edges within the generated images. Moreover, an initialization phase is integrated into the model to enhance convergence during training. Through extensive experimentation, our results demonstrate the superior performance of the Deep Cartoonifier in generating high-quality cartoon images characterized by clear edges and smooth shading, surpassing the capabilities of existing state-of-the-art methods.

The proposed model not only excels in producing visually appealing cartoon-style representations but also offers enhanced flexibility, control, and efficiency. By providing users with a powerful tool for creative image stylization, the Deep Cartoonifier holds significant promise for a wide range of applications in digital art, entertainment, and multimedia production.

**Project ID: 24/CS/01/09**

# AIR QUALITY INDEX PREDICTION THROUGH DEEP LEARNING TECHNIQUES

A

PROJECT REPORT

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Submitted in partial fulfillment of the requirements for the degree of Bachelor of Technology

in

**Computer Science**



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Place: Ghaziabad
Date: May 25, 2024



Director
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# Acknowledgements

Amidst the triumphant culmination of our esteemed project, we extend our deepest gratitude to the myriad individuals whose invaluable contributions have been instrumental in our success. We are indebted to Dr. Anu Chaudhary's visionary leadership, Mr. Mayank Trivedi's astute mentorship, the Almighty's divine grace, the unwavering support of our beloved parents, and the camaraderie of our colleagues. Their collective efforts have propelled us to transcend the boundaries of our limitations, etching our names in the annals of history as pioneers in our respective fields, a testament to the power of collaboration and perseverance.

# Abstract

Air pollution poses a grave threat to global health, linked to myriad deleterious impacts. Accurate Air Quality Index (AQI) forecasting is paramount for effective air quality management. However, the complex dynamics of air pollution render AQI prediction challenging.

Machine learning (ML) techniques have emerged as promising tools for AQI forecasting. These advanced models leverage historical AQI data and meteorological variables to discern complex patterns and generate accurate predictions. By examining the interplay between these factors, ML models provide invaluable insights into air quality trends and potential environmental impacts, facilitating proactive measures to safeguard public health.

Various ML algorithms, including regression analysis, decision trees, support vector machines, artificial neural networks (ANNs), and ensemble methods, have been explored. Regression analysis is extensively utilized to model pollutant concentrations and meteorological factors, while ANNs excel at capturing nonlinear relationships. Advanced deep learning architectures like convolutional neural networks (CNNs) and recurrent neural networks (RNNs) have gained traction, incorporating spatial and sequential data.

However, limited data availability poses challenges, particularly in regions with sparse monitoring infrastructure. Techniques like data augmentation and transfer learning are employed to address this issue.

This project aims to develop robust ML models integrating advanced algorithms and data processing strategies for accurate AQI prediction, supporting air quality management and public health initiatives.

**Project ID: 24/Computer Science/CS-1/10**

# Cogniview:An elegant synergy of Image Capturing & CCTV for enhanced accessibility

A PROJECT REPORT
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We hereby declare that the work presented in this report entitled "Cogniview:An elegant synergy of Image Capturing  CCTV for enhanced accessibility", was carried out by us. We have not submitted the matter embodied in this report for the award of any other degree or diploma of any other University or Institute. I have given due credit to the original authors / sources for all the words, ideas, diagrams, graphics, computer programs, experiments, results, that are not my original contribution. I have used quotation marks to identify verbatim sentences and given credit to the original authors/ sources.

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**Place: Ghaziabad**
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# Acknowledgements

Amidst the resounding success of our esteemed project, we extend profound gratitude to the myriad individuals whose invaluable contributions have been pivotal to our achievement.

At the forefront stands Dr. Anu Choudry, Head of the Computer Science and Engineering Department, whose visionary leadership and nurturing guidance have cultivated an environment where students thrive. Dr. Choudry's unwavering commitment to fostering camaraderie and healthy competition has propelled us to pursue loftier goals with unyielding determination.

We owe an immeasurable gratitude to Mr. Vishal Choudhary, Assistant Professor at Ajay Kumar Garg Engineering College, Ghaziabad, whose steadfast support and astute mentorship have illuminated our path. Mr. Vishal's commitment to excellence and unwavering perseverance have fueled our resolve to push the boundaries of our capabilities.

The divine grace and blessings bestowed upon us by the Almighty have been our guiding light, instilling the strength, resilience, and determination to navigate this project's intricate labyrinth. We have emerged triumphant through His benevolence, enriched with invaluable knowledge and experiences.

Our heartfelt appreciation extends to our beloved parents, whose unwavering support, unconditional love, and profound belief in our abilities have served as the bedrock upon which our aspirations have been built. Their sacrifices and encouragement have fueled our relentless pursuit of excellence.

We also acknowledge the dedicated teaching and non-teaching staff members of our department and our esteemed colleagues, whose unwavering support and camaraderie have played a pivotal role in our success. Their collective contributions, through guidance or moral support, have shaped our journey and enabled us to overcome challenges.

In conclusion, we humbly recognize the invaluable role played by every individual who has contributed to our endeavor. Through their collective efforts, we have achieved this remarkable feat, transcending the boundaries of our limitations. As pioneers in our respective fields, our names shall forever be etched in the annals of history, testament to the power of collaboration, perseverance, and unwavering determination.

# Abstract

This article explores a groundbreaking approach to enhance security monitoring capabilities by integrating cutting-edge image captioning technology with closed-circuit television (CCTV) surveillance systems. Through the utilization of sophisticated deep learning models, the system autonomously generates descriptive text for CCTV footage in real-time, facilitating rapid assessment and response to security incidents. Beyond mere visualization, this integrated system empowers security personnel with actionable insights, thereby significantly improving situational awareness and response effectiveness. The potential applications of this integrated approach extend to automated event detection, anomaly classification, and forensic analysis, offering a multifaceted solution to complex security challenges. However, the implementation of such a system is not without its technical challenges, including data preprocessing and model optimization, which necessitate careful consideration and expertise. Empirical evaluations corroborate the efficacy of this integrated approach, highlighting its capacity to revolutionize security monitoring practices and advance security intelligence capabilities. Looking ahead, further research avenues in this multidisciplinary field are outlined, emphasizing the need for ongoing innovation and collaboration to address evolving security threats effectively.

**Project ID: 2024/CS/01/11**

# DROWSINESS DETECTION SYSTEM FOR ROAD ACCIDENT PREVENTION USING MACHINE LEARNING

A PROJECT REPORT
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# DECLARATION

We hereby declare that the work presented in this report entitled "Drowsiness Detection System for Road Accident Prevention Using Machine Learning", was carried out by us. We have not submitted the matter embodied in this report for the award of any other degree or diploma of any other University or Institute. I have given due credit to the original authors / sources for all the words, ideas, diagrams, graphics, computer programs, experiments, results, that are not my original contribution. I have used quotation marks to identify verbatim sentences and given credit to the original authors / sources.

I affirm that no portion of my work is plagiarized, and the experiments and results reported in the report are not manipulated. In the event of a complaint of plagiarism and the manipulation of the experiments and results, I shall be fully responsible and answerable.

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# CERTIFICATE

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Place: Ghaziabad
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# Acknowledgements

I would like to express my sincere gratitude to Dr. Anu Chaudhary, Head of the Computer Science and Engineering Department, for his constant support and encouragement throughout this project.

Special thanks are due to Ms. Kamna Singh, our project mentor, for her invaluable guidance, expertise, and patience. Her insights and suggestions have been instrumental in shaping this project.

I am also grateful to Dr. Rajesh Prasad, Professor In-charge of Computer Science, for his valuable inputs and encouragement at various stages of this project.

I would like to extend my appreciation to all the faculty members of the Computer Science and Engineering Department for their support and encouragement.

Lastly, I would like to thank my family and friends for their unwavering support and encouragement throughout this endeavor.

# Abstract

Addressing the pressing issue of road safety, particularly the dangers associated with drowsy driving, this study presents a comprehensive drowsiness detection system employing machine learning methodologies. Recognizing the limitations of existing approaches such as behavioral interventions, educational initiatives, and environmental changes, our research focuses on developing a real-time drowsiness detection system capable of promptly alerting drivers when necessary. Using HOG, SVM, EAR, and MAR algorithms, our system detects indicators of drowsiness, including eye aspect ratio and yawning. In the event of drowsiness detection, the system emits a warning signal, escalating to a louder alarm if the driver fails to respond within a specified timeframe. Furthermore, in cases of non-response, the system has the capability to transmit the driver's location to a predetermined device or contact for assistance. This paper contributes to enhancing road safety by providing an effective and technologically advanced solution to mitigate the risks associated with drowsy driving.

Project ID: 2024/CS/01/12

# Information Retrieval from Image in Voice form

## A PROJECT REPORT

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# Declaration

We hereby declare that the work presented in this report entitled "**Information Retrieval from Image in Voice form**", was carried out by us. We have not submitted thematter embodied in this report for the award of any other degree or diploma of any other University or Institute. I have given due credit to the original authors / sources for all thewords, ideas, diagrams, graphics, computer programs, experiments, results, that are not my original contribution. I have used quotation marks to identify verbatim sentences and given credit to the original authors / sources.

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# Acknowledgements

Apart from the efforts of all the team members, the section of this project report topic depends largely on the encouragement and guidance of our teachers. We take this opportunity to express our gratitude to the teachers who have been instrumental in the approval of this project topic. I'm grateful to our respected Head of the DepartmentDr. Anu Chaudhary, for allowing me to use the facilities available.

We would like to show our greatest appreciation to Dr. Rajesh Prasad and other Faculty members. We cannot thank them enough for their tremendous support and help. They motivated and encouraged use every time while selecting the proper project topic. Without their encouragement and guidance, we would not have been able to select the proper topic.

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# Abstract

Image captioning is the fundamental problem of interpreting the visual language, in which a model predicts an info text caption for a given input image. In this report, we offer a straightforward solution to this issue. Using VGG16, RESNET50 and CLIP encoding as the caption prefix, a simple mapping network, and some modification of language model are used to generate image captions. The image captioning models typically consists of an encoder-decoder architecture, where the encoder extracts features from the input image and encodes them into a fixed-length vector, which is then fed into the decoder to generate a textual description of the image. The encoder is usuallya pre-trained convolutional neural network (CNN), such as VGG16, and the decoder is a recurrent neural network (RNN), such as LSTM or GRU.

The VGG16 model, has achieved state-of-the-art performance on several computer vision tasks, including image captioning. The VGG16 model can be used as a feature extractor for image captioning, where the last fully connected layer is removed, and the output of the penultimate layer is used as the input to the captioning model.

In the ResNet50 model, the encoder extracts visual features from the input image using the pre-trained ResNet50 model. These features are then fed into the decoder, which generates a textual description of the image. The decoder consists of an LSTM or GRU network that takes the visual features as input and generates a sequence of words that describe the image.

The CLIP model, which has rich semantic characteristics learned on textual con- texts, is best suited for visual language recognition. Our main goal is to use a pre- trained language model to extensively grasp both visual and textual input (GPT2). Therefore, our method just needs a quick amount of training to produce a reliable sub- title model. Large and diverse data sets may be effectively produced with meaningful signatures, without the need for extra annotations or training beforehand. Surpris- ingly, our approach still performs well when the mapping network is the only one trained, leaving the CLIP and language models constant, resulting in a simpler archi- tecture with fewer trainable parameters. We quantify our model to demonstrate that it is quicker, lighter, and produces results that are equivalent to those of a state-of-the- art technique without the need for complicated conceptual captioning and captioned datasets.

Project ID: 23-24/CS/G13

# Gesture and Voice Controlled Virtual Mouse

A
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**Submitted in partial fulfillment of the requirements for the degree of Bachelor of Technology**
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**Session:2020-24**

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# Declaration

We hereby declare that the work presented in this report entitled "GESTURE AND VOICE CONTROLLED VIRTUAL MOUSE", was carried out by us. We have not submitted the matter embodied in this report for the award of any other degree or diploma of any other University or Institute. I have given due credit to the original authors / sources for all the words, ideas, diagrams, graphics, computer programs, experiments, results, that are not my original contribution. I have used quotation marks to identify verbatim sentences and given credit to the original authors / sources.

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# Acknowledgements

Apart from my efforts, the success of the project depends largely on the encouragement and guidelines of many others. I take this opportunity to express my gratitude to the people who have been instrumental in the successful completion of this project. I would like to express a deep sense of gratitude to Professor Dr. Anu Chaudhary, the our Head of the department, Mr. Akhilesh Verma, the project coordinators for their cordial support as they gave the permission to use all required equipment and the necessary material to complete the project. I would like to extend my sincerest gratitude to Mr.Anuj Kumar for her guidance and supervision as well as for providing necessary information regarding the project and also for the support in completing the project. Finally, I also extend my heartiest thanks to my parents, friends, and well-wishers for being with me and extending encouragement throughout the project.

# Abstract

Sometimes, using a mouse or keyboard isn't easy—imagine trying to control your computer when your hands are full or if you have trouble using traditional methods. Gesture and voice control solve these problems by letting you control your computer more naturally.

This paper, focusing on how OpenCV, Media-pipe, and TensorFlow help them understand gestures and voice commands. OpenCV, Media-pipe, and TensorFlow work together to let you talk to your computer with your hands and voice. OpenCV is like the eyes, watching your hands. Media-pipe and TensorFlow are like the ears and brain, listening to your voice and making sense of it.

and making sense of it. This new way of interacting with computers is especially helpful for people with different abilities. It makes it easier for them to use computers. But it's not just for that—these systems can also be used for fun things like gaming. So, it's not only about making computers more accessible but also making them more enjoyable for everyone.

**Project ID: 2024/CS/01/14**

# PHISHING SITE DETECTION ANALYSIS USING ML

A PROJECT REPORT
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to


Department of Computer Science & Engineering
**AJAY KUMAR GARG ENGINEERING COLLEGE, GHAZIABAD**
**DR. APJ ABDUL KALAM TECHNICAL UNIVERSITY, LUCKNOW**

May 27, 2024

Director
Ajay Kumar Garg Engg. College
Ghaziabad

# Declaration

We hereby declare that the work presented in this report entitled "PHISHING SITE DETECTION ANALYSIS USING ML", was carried out by us. We have not submitted the matter embodied in this report for the award of any other degree or diploma of any other University or Institute. I have given due credit to the original authors / sources for all the words, ideas, diagrams, graphics, computer programs, experiments, results, that are not my original contribution. I have used quotation marks to identify verbatim sentences and given credit to the original authors / sources.

I affirm that no portion of my work is plagiarized, and the experiments and results reported in the report are not manipulated. In the event of a complaint of plagiarism and the manipulation of the experiments and results, I shall be fully responsible and answerable.

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# Acknowledgements

We would like to express our deepest gratitude to our supervisor, **Mr. Manoj Kumar Srivastava**, for his invaluable guidance and support throughout the research process. His expertise and encouragement have been instrumental in shaping this project, providing us with the direction and insights necessary to overcome challenges and achieve our goals. His dedication to our success has been a constant source of motivation, and we are profoundly grateful for his mentorship.

We also extend our appreciation to **Ajay Kumar Garg Engineering College, Ghaziabad**, for providing the necessary resources and facilities for conducting this research. The institution's commitment to fostering an environment conducive to academic inquiry and innovation has been crucial to the successful completion of our project. We are thankful for the access to state-of-the-art laboratories, comprehensive libraries, and a supportive administrative staff, all of which have greatly contributed to our work.

Special thanks are due to our colleagues and friends for their constructive feedback and discussions, which have significantly contributed to the refinement of our ideas and analysis. Their willingness to engage in thoughtful debates, share diverse perspectives, and offer practical advice has enriched our research process. Their support and camaraderie have been invaluable, helping us to navigate the complexities of our project with greater confidence and clarity.

Last but not least, we are deeply grateful to our families for their unwavering love, understanding, and encouragement throughout this journey. Their constant support has provided us with the emotional strength and stability needed to persevere through the demanding phases of our research.

**Project ID: 2024/CS/CS-1/15**

# OPTIMIZING AGRONOMIC EFFICIENCY ON VARIOUS FACTORS

A PROJECT REPORT
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Submitted in partial fulfillment of the requirements for the degree of
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to



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# Declaration

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# Acknowledgements

It gives me a great sense of pleasure to present the report of the B. Tech. Project Presentation undertaken during B. Tech. Final Year. I owe a special debt of gratitude to Dr. Rakesh Kumar Yadav, Department of Computer Science and Engineering, Ajay Kumar Garg Engineering College, Ghaziabad, for his constant support and guidance throughout the course of our work. His sincerity, thoroughness and perseverance have been a constant source of inspiration for us. It is only through his cognizant efforts that our endeavours have seen the light of day. I acknowledge the contribution of all faculty members of the department for their kind assistance and co-operation during the development of our report. I also acknowledge my friends for their contribution in the completion of the paper.

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# Abstract

Agronomic efficiency refers to the process of maximizing the yield and quality of crops while minimizing the use of resources such as water, fertilizers, and pesticides. The goal of crop optimization is to achieve sustainable agriculture by reducing the environmental impact of farming practices and increasing the profitability of crop production.

In practical application, the integration of technological advancements, such as data analytics and precision agriculture, enables farmers to make informed decisions tailored to specific environmental conditions and crop requirements. For instance, when the soil analysis indicates a high nitrogen content coupled with moderate levels of phosphorus and potassium, alongside favorable temperature, humidity, pH, and rainfall, rice emerges as the optimal crop choice. Conversely, in scenarios where the soil composition varies, with lower nitrogen but higher phosphorus and potassium levels, coupled with differing climatic parameters, such as lower humidity and rainfall, maize emerges as the preferred crop due to its adaptability to such conditions. These tailored recommendations highlight the nuanced approach that crop optimization offers, providing farmers with actionable insights to maximize yields, conserve resources, and contribute to sustainable agriculture.

After inputting various values into our model(Optimizing Agronomic Efficiency On Various factor) we can say that rice, papaya and coconut are grown in a high temperature environment. muskmelon,lentil and mung bean are grown in a low temperature environment.

**Project ID: 2024/CS/01/16**

# Beyond Supervised Learning: Leveraging Reinforcement Learning for Enhanced Cryptocurrency Money Laundering Detection

A PROJECT REPORT
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We hereby declare that the work presented in this report entitled "**Beyond Supervised Learning: Leveraging Reinforcement Learning for Enhanced Cryptocurrency Money Laundering Detection** ", was carried out by us. We have not submitted the matter embodied in this report for the award of any other degree or diploma of any other University or Institute. I have given due credit to the original authors / sources for all the words, ideas, diagrams, graphics, computer programs, experiments, results, that are not my original contribution. I have used quotation marks to identify verbatim sentences and given credit to the original authors / sources.

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# Acknowledgements

Apart from the efforts of all the team members, the section of this project report topic depends largely on the encouragement and guidance of our teachers. We take this opportunity to express our gratitude to the teachers who have been instrumental in the approval of this project topic. I'm grateful to our respected Head of the Department Dr. Anu Chaudhary and Professor Incharge Dr. Rajesh Prasad for allowing me to use the facilities available. We would like to show our greatest appreciation to Mr. Pushkal Kumar Shukla and other Faculty members. We cannot thank them enough for their tremendous support and help. They motivated and encouraged use very time while selecting the proper project topic. Without their encouragement and guidance, we would not have been able to select the proper topic.

# Abstract

In this report, we delve into the intricate world of money laundering within the Bitcoin blockchain, building upon the findings of our research paper, "Beyond Supervised Learning: Leveraging Reinforcement Learning for Enhanced Cryptocurrency Money Laundering Detection." The anonymous nature of Bitcoin transactions presents a significant challenge in identifying illicit activities. Traditional supervised learning methods, while valuable, have limitations due to their reliance on labeled data and their vulnerability to adversarial attacks.

To address these challenges, our team proposes a novel approach that harnesses the power of reinforcement learning. This method leverages both labeled and unlabeled transaction data, allowing for a more comprehensive understanding of money laundering patterns. By continuously learning and adapting to new information, the reinforcement learning model demonstrates superior accuracy and adaptability compared to conventional supervised learning approaches.

Our research findings underscore the potential of reinforcement learning to revolutionize anti-money laundering efforts in the cryptocurrency realm. By effectively identifying and mitigating illicit activities, this approach can contribute to a more secure and transparent financial ecosystem. This report aims to shed light on the intricacies of money laundering within the Bitcoin blockchain and showcase the potential of reinforcement learning as a powerful tool in combating financial crime.

**Project ID: 24/CS/2/23**

# Diabetic Retinopathy Detection System

A PROJECT REPORT
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# Declaration

We hereby declare that the work presented in this report entitled "Diabetic Retinopathy Detection System", was carried out by us. We have not submitted the matter embodied in this report for the award of any other degree or diploma of any other University or Institute. I have given due credit to the original authors / sources for all the words, ideas, diagrams, graphics, computer programs, experiments, results, that are not my original contribution. I have used quotation marks to identify verbatim sentences and given credit to the original authors / sources.

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# Acknowledgements

We gratefully acknowledge all those who contributed to the completion of this study on early detection of Diabetic Retinopathy (DR) using VGG-16 and transfer learning.

First and foremost, we extend our sincere gratitude to Dr. Rajesh Prasad, whose expertise, guidance, and unwavering support were instrumental throughout this research. Their insightful feedback and encouragement helped shape the direction of our study.

We would like to thank the healthcare professionals and institutions that provided access to the necessary datasets and resources. Their collaboration was essential in enabling us to conduct this research effectively and accurately.

Special thanks are due to the developers of the VGG-16 model, whose pioneering work in deep learning laid the foundation for our approach to diagnosing DR.

We also acknowledge our colleagues and peers for their valuable input, discussions, and feedback, which contributed significantly to the refinement of our methodologies and findings.

This study would not have been possible without the collective effort and support of all those mentioned above. Their contributions have been invaluable in advancing our understanding of DR detection and improving patient outcomes.

**Project ID: 24/CS/02/24**

# Eco Harvest: Precision Agriculture using Machine Learning Models

A PROJECT REPORT
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We hereby declare that the work presented in this report entitled "ECO HARVEST", was carried out by us. We have not submitted the matter embodied in this report for the award of any other degree or diploma of any other University or Institute. I have given due credit to the original authors/sources for all the words, ideas, diagrams, graphics, computer programs, experiments, results, that are not my original contribution. I have used quotation marks to identify verbatim sentences and given credit to the original authors/sources.

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# Acknowledgements

We extend our heartfelt gratitude to **Dr. R.K. Agarwal, our College Director General**, for his visionary leadership and unwavering support that have shaped our academic journey. We also appreciate Dr. Anu Chaudhary, our esteemed Head of Department, for his guidance and encouragement.

Our sincere thanks go to **Dr. Rajesh Prasad, our Professor Incharge**, for his invaluable mentorship during our project development. We are also deeply grateful to **Asst. Prof. Ashish Kumar**, our esteemed mentor and project guide, for his unwavering support and profound insights.

Additionally, we extend our gratitude to all faculty members, staff, and fellow students for their support and encouragement throughout our academic journey. Their collective efforts have played a pivotal role in our success.We acknowledge with deep appreciation the contributions of all those who have supported and encouraged us along the way. Their collective efforts have played an integral role in our academic journey, and we are immensely grateful for their unwavering support and encouragement.

# Abstract

Precision agriculture is an emerging and influential trend in the agriculture industry, aiming to revolutionize crop management by leveraging advanced technologies to boost productivity, optimize resource utilization, and promote sustainable practices. This research paper presents an innovative and comprehensive approach to precision agriculture, addressing the primary challenges in modern crop management by integrating cutting-edge technologies to deliver a unified solution for crop management. The framework encompasses sophisticated crop recommendations, precise fertilizer suggestions, and effective disease detection mechanisms.

Our primary research objective is to provide valuable assistance to farmers in identifying the most suitable crops for their specific circumstances and environment. This involves predicting the most suitable crops based on a comprehensive analysis of various factors influencing crop growth, including soil nutrients, soil pH, humidity, and other environmental variables. To ensure the accuracy and reliability of our predictions, we employ a diverse set of Machine Learning Models, such as Random Forests, Neural Networks, and Decision Trees, to effectively analyze and interpret complex agricultural data.

**Project ID: 24/CS/CS-2/25**

# GPS COMMUNICATION OVER LORA IN OFFLINE MODE

A PROJECT REPORT
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# Declaration

We hereby declare that the work presented in this document entitled **"GPS Communication over LoRa in Offline Mode"**, is carried out by us. We have not submitted the matter embodied in this document for the award of any other degree or diploma from any other University or Institute. We have given due credit to the original authors/sources for all the words, ideas, diagrams, graphics, computer programs, experiments, and results, that are not our original contributions. We have used quotation marks to identify verbatim sentences and given credit to the original authors/sources.

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# Acknowledgements

We extend our heartfelt gratitude to all those who have contributed to the successful completion of this project on GPS communication over LoRa. First and foremost, we express our deepest appreciation to Ms. Neeti Pahuja, whose invaluable guidance, support, and encouragement propelled us forward throughout the duration of this project. Her expertise and unwavering commitment have been instrumental in shaping our understanding and refining our methodologies.

We are immensely thankful to our team members for their dedication, hard work, and collaborative spirit. Each member brought unique insights, skills, and perspectives to the table, enriching our project with diverse ideas and approaches.

We are also indebted to Ajay Kumar Garg Engineering College for providing us with the necessary resources, facilities, and funding essential for the execution of this project. Their continued support has been pivotal in overcoming challenges and achieving our objectives. We appreciate all who shared their knowledge, expertise, and feedback during this project. Their insights greatly improved our work.

Thank you.

# Abstract

This research project aims to utilize LoRa (Long Range) technology for remote tracking of ground personnel during bandobast duty. LoRa's attributes of low power consumption, extended range, and modest bitrate make it ideal for long-distance tracking without continuous network connectivity. This study explores integrating LoRa with GPS tracking offline, focusing on monitoring individuals within a specified perimeter. The goal is real-time data transmission for addressing challenges like asset tracking and monitoring in areas with limited connectivity. Emphasis lies on achieving seamless communication and precise positioning, even in remote locales, offering distinct advantages for monitoring ground personnel and collecting data autonomously.

**Keywords—LoRa Ra-02, GPS module NEO-6M, NodeMCU esp8266, Bluetooth HC05**

**Project ID: 24/BRANCH: CS/SECTION: CS2/GID: 26**

# Stock Market Analysis and Prediction using LSTM

A PROJECT REPORT
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We hereby declare that the work presented in this report entitled "Stock price prediction using LSTM", was carried out by us. We have not submitted the matter embodied in this report for the award of any other degree or diploma of any other University or Institute.We have given due credit to the original authors / sources for all the words, ideas, diagrams, graphics, computer programs, experiments, results, that are not my original contribution. I have used quotation marks to identify verbatim sentences and given credit to the original authors / sources.

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# Acknowledgements

We would like to express our heartfelt appreciation to our two guides, Mr.Pradeep Gupta, Dr.Sonam Gupta, Dr.Akhilesh Verma, Professor Incharge Dr. Rajesh Prasad and HOD Sir Dr. Anu Chaudhary for their unwavering support, guidance, and expertise throughout this project. Their insightful feedback, patience, and encouragement were instrumental in shaping our research and guiding us through challenges.

Furthermore, we extend our thanks to our families and friends for their continuous support and understanding during this journey. Their encouragement kept us motivated and inspired us to persevere through the complexities of the project.

Lastly, we acknowledge the collective effort of our group members Shashank Pandey, Prateek Tyagi, Naman Jha, Shashank Sharma and Vivek Tyagi. Each member's dedication, collaboration, and unique skills contributed to the success of our project.

Overall, we are grateful for the opportunity to work on this project and for the support of everyone involved.

# Abstract

The stock market has always played a crucial part in the development of the national economy. Over time, the amount of people interested in the stock market has grown significantly, large number of people have become involved in the Stock market and the habits of the people have changed, the prediction for stock has been an important and hot topic. Stock prices are Time series data, they have high noise, high variable, and high volatility. So, the traditional buy and hold strategies cannot accurately capture this non-linear trend of data which results in poor prediction. LSTM is a type of recur- rent neural network model which is adept in handling the Time series data. In this re- search, authors have predicted the stock price (open price and close price) of Apple company using a LSTM model which was trained on the historical data of apple stock (APPL). Keywords: LSTM, Deep Learning, and stock price prediction.

**Project ID: 24/CS/2/27**

# MUSION: Personalized Music Recommendations with AI

A PROJECT REPORT
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**Under the Guidance of**
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Submitted in partial fulfilment of the requirements for the degree of Bachelor of Technology in Computer Science

to


Department of Computer Science & Engineering
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May 25, 2024

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# Declaration

We hereby declare that the work presented in this report entitled "Musion: Personalized Music Recommendations with AI Based Mood Analysis", was carried out by us. We have not submitted the matter embodied in this report for the award of any other degree or diploma of any other University or Institute. I have given due credit to the original authors / sources for all the words, ideas, diagrams, graphics, computer programs, experiments, results, that are not my original contribution. I have used quotation marks to identify verbatim sentences and given credit to the original authors / sources.

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# Acknowledgements

We would like to express our sincere gratitude to all those who have contributed to the successful completion of this project. First and foremost, we are highly indebted to Dr ANU CHAUDHARY, HOD of Computer Science AKG Engineering College for providing us with an opportunity to undertake a project as partial fulfilment of the requirements for the degree of Bachelor of Technology in Computer Science. We would like to express our special gratitude to our project guide, Mr.SURENDAR KUMAR, for giving us such attention and time. Our guide had taken great pain and effort to help us in the best way without whom this project would ever have been realized.

I would like to acknowledge the contributions of my colleagues and friends who provided valuable insights and feedback during brainstorming sessions and discussions. I am also grateful to my family for their unwavering support and understanding during the demanding phases of this project. Their encouragement and patience were crucial in sustaining my motivation. Lastly, I express my appreciation to all those who, directly or indirectly, contributed to the realization of this project. Your support has been in- instrumental, and I am truly thankful

# Abstract

Music has become one of the major parts of today's entertainment resources. There are so many music applications emerging over the internet. But all the applications are using the traditional music recommending mechanism such as suggesting music based on singer, frequency of listening...etc. An intelligent music player stands as a contemporary music application employing advanced artificial intelligence algorithms to furnish users with a highly tailored and personalized listening experience. This comprehensive report delves into the multifaceted features and advantages intrinsic to these intelligent music players. It meticulously showcases their adeptness in comprehending user preferences, proffering song recommendations based on mood, and seamlessly integrating with smart devices. Furthermore, the report delves into the potential implications of intelligent music players on the music industry and the evolving landscape of music consumption. Hence, this project implements an AI intelligence music suggestion application which suggests music based on user mood. The user mode was directly detected from the webcam and the music started to play based on their need. This underscores the significant role that intelligent music players play in elevating the overall listening experience, making it more immersive and enjoyable for music enthusiasts.

**Project ID: 24/Computer Science/CS-2/29**

# Fit-GO

## Fitness Immersed Training - Gaming Onset

**A PROJECT REPORT**

Submitted By


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We hereby declare that the work presented in this report entitled "Fit-GO", was carried out by us. We have not submitted the matter embodied in this report for the award of any other degree or diploma of any other University or Institute. I have given due credit to the original authors/sources for all the words, ideas, diagrams, graphics, computer programs, experiments, and results, that are not my original contribution. I have used quotation marks to identify verbatim sentences and given credit to the original authors/sources.

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# ACKNOWLEDGEMENT

We would like to convey my heartfelt gratitude to Ms. Ankita Rani for her tremendous support and assistance in the completion of my project. We would also like to thank our HOD sir Dr. Rajesh Prasad, for providing us with this wonderful opportunity to work on project "Fit-GO Fitness Immersed Training Gaming Onset". The completion of the project would not have been possible without their help and insights. We would like to express our special thanks of gratitude to our friends who helped us in doing a lot of research and we came to know about so many new things, we are really thankful to them. Secondly, we would also like to thank our parents and college who helped us a lot in finalizing this project within the limited time frame. We have made efforts in this project. However, it would not be possible without the kind support and help of many individuals and organizations. We would like to extend our sincere thanks to all of them.

# ABSTRACT

The demand for VR headsets has increased dramatically this year by 241.6% due to the growing popularity of VR games among young people. Despite their poor quality and possible health risks, low-cost VR headset makers dominate the market, especially in countries like India. Because they are not very durable, these low-cost virtual reality gadgets have an adverse effect on users' health and contribute to environmental problems.

Even though businesses started making investments in virtual reality technologies in 2014, smartphones today have more sensors than VR headsets and controllers put together. Applications that provide a VR-like experience through smartphones are needed to discourage the usage of inexpensive VR hardware. The Fit-GO platform is a suggested remedy that consists of a web and mobile application with the goal of reducing the need for subpar VR headsets to reduce costs.

The surge in demand for virtual reality (VR) headsets, especially among the younger demographic, has been unprecedented in recent years. This increase, recorded at a staggering 241.6%, is largely fueled by the growing popularity of VR games and the emergence of affordable VR hardware, particularly prominent in regions like India. However, this proliferation of budget-friendly VR devices is not without its drawbacks. These gadgets often suffer from inferior build quality, ergonomic shortcomings, and a limited lifespan, which can adversely affect user health and contribute to environmental degradation.

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# Chapter 1

# Introduction

## 1.1 Background

In the ever-evolving landscape of modernity, the pervasive influence of technology has reshaped the way we live, work, and interact with the world around us. From the moment we awaken to the glow of digital screens to the late hours spent scrolling through endless feeds, our lives have become intertwined with the virtual realm of PCs, laptops, smartphones, and an array of other devices. This digital immersion extends across all age groups, with children and adults alike finding themselves increasingly tethered to screens for entertainment, communication, and productivity.

While the benefits of technological progress are undeniable, the unintended consequences are equally profound, particularly concerning our physical and mental well-being. In India, a nation teeming with vitality and diversity, the implications of this digital revolution intersect with a healthcare landscape struggling to meet the needs of its populace. Despite concerted efforts to expand access to healthcare services, significant gaps persist, especially in the realm of mental health support and preventive care.

The World Health Organization (WHO) has sounded the alarm on this pressing issue, highlighting the critical shortage of mental and physical health professionals in India. This deficit not only impedes timely access

to care but also perpetuates a cycle of unmet health needs and untreated conditions. Against this backdrop, it's concerning to note that a substantial portion of the population, amounting to 34 percent according to WHO data, is categorized as insufficiently active, failing to meet recommended levels of physical activity.

The ramifications of this sedentary lifestyle are felt acutely in India's urban centers, where the hustle and bustle of city life often leave little room for self-care and exercise. In the throbbing heart of metropolitan areas, where time is a precious commodity, a staggering 52 percent of individuals aged 20 to 35 report struggling to carve out moments for physical activity amidst their demanding schedules. This lack of leisure time, compounded by the allure of digital distractions, poses a formidable barrier to cultivating healthy habits and lifestyles.

To address these multifaceted challenges, a holistic approach is imperative, one that recognizes the interconnectedness of individual behavior, societal norms, and systemic interventions. Promoting physical activity and well-being requires not only individual commitment but also supportive environments that facilitate healthy choices. Likewise, efforts to strengthen India's healthcare infrastructure must be coupled with initiatives aimed at raising awareness, reducing stigma, and promoting early intervention for mental health disorders.

Moreover, fostering digital literacy and promoting responsible screen time management can empower individuals to harness the benefits of technology without sacrificing their physical and mental health. By cultivating a culture that values holistic well-being and embraces the symbiotic relationship between technology and human flourishing, India can chart a course toward a healthier, more resilient future for all its citizens.

### 1.1.1 The Rise of Virtual Reality Gaming

Virtual reality gaming represents a revolutionary shift in the gaming landscape, offering players unprecedented levels of immersion and interactivity. By donning VR headsets, players can transport themselves to virtual worlds where they can interact with their surroundings and engage in gaming experiences like never before. This level of immersion has captured the imagination of gamers worldwide, driving demand for VR hardware and software.

#### Investment in VR Technology

Major gaming corporations have recognized the potential of VR technology and have made significant investments in its development. Companies like Razer Inc. and Sony Corp have allocated resources towards research and development efforts aimed at creating cutting-edge VR hardware and software. These investments reflect a commitment to pushing the boundaries of gaming innovation and delivering compelling experiences to players.

#### Concerns Regarding VR Usage

While VR technology holds immense promise for the gaming industry, concerns have been raised regarding its potential negative effects on users' health and well-being. Research studies, such as the report titled 'Virtual experience, real consequences' [5], have highlighted the physiological and psychological risks associated with prolonged VR usage. These risks include symptoms such as nausea, dizziness, eye fatigue, and even adverse emotional responses depending on the nature of the content.

#### Physiological and Psychological Impact of VR

Studies have shown that prolonged exposure to VR environments can have a range of physiological and psychological effects on users. Physiologically, users may experience symptoms such as motion sickness, eye strain, and headaches due to the sensory mismatch between visual cues and physical

movement. Psychologically, certain VR experiences may evoke feelings of fear, anxiety, or discomfort, particularly in response to immersive and intense content.

#### Neural Activity Suppression in VR Environments

In addition to physiological and psychological effects, research has revealed intriguing insights into the impact of VR on neural activity. Studies conducted on rats have shown that within virtual reality environments, approximately 60% of neural activity undergoes suppression. This suppression of neural activity suggests that VR experiences may have complex effects on brain function and cognitive processes.

#### Dominance of Affordable VR Models

Despite efforts to innovate and improve VR technology, the market is currently dominated by affordable VR models constructed from substandard materials. These low-cost VR systems comprise around 90% of the market share and often fail to deliver the immersive experiences sought by users. In addition to lacking durability and performance, these budget-friendly VR devices pose significant challenges to the Green Hardware Ecosystem due to their disposable nature and environmental impact.

#### The Need for Innovation and Sustainability

In light of these challenges, there is a growing imperative to prioritize innovations that not only enhance user experience but also safeguard users' health and well-being. With individuals increasingly immersed in their daily routines and children spending more time engaged in video gaming, concerns have been raised by organizations like the World Health Organization (WHO) regarding a critical shortage of mental and physical health professionals in countries like India.

### 1.1.2 Mental and Physical Health Concerns

Research indicates that a significant portion of the population, particularly in urban areas, struggles to prioritize physical activity due to time constraints and lack of motivation. In India, for example, 34% of individuals display a lack of motivation to maintain their health, while 52% of individuals between the ages of 20 and 35 in major metropolitan centers struggle to find time for exercise. Additionally, nearly 64% of Indians are not engaged in regular physical activity, contributing to various health issues such as depression and anxiety disorders.

### 1.1.3 Promoting Physical Activity through Gaming

To address these concerns and promote physical activity among users, there is a need to explore alternative approaches to gaming that prioritize user health and well-being. One such approach is to leverage existing technology, such as smartphones and laptops equipped with advanced sensors, to develop applications that encourage physical activity without the need for VR. By utilizing widely accessible devices and integrating features that promote movement and exercise, developers can create gaming experiences that contribute positively to users' physical health.

### 1.1.4 Sustainable Gaming Solutions

In addition to promoting user health, there is also a need to address the environmental impact of gaming hardware and software. The dominance of affordable VR models constructed from substandard materials poses significant challenges to the sustainability of the Green Hardware Ecosystem. To mitigate these challenges, developers should prioritize the development of sustainable gaming solutions that minimize environmental impact and reduce hardware waste.

**Project ID: 2024/CS/2/30**

# L E G A L - B R I D G E

Connecting People To Legal

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# Declaration

We hereby declare that the work presented in this report entitled "LEGAL-BRIDGE: CONNECTING PEOPLE TO LEGAL", was carried out by us. We have not submitted the matter embodied in this report for the award of any other degree or diploma from any other University or Institute. I have given due credit to the original authors/sources for all the words, ideas, diagrams, graphics, computer programs, experiments, and results, that is not my original contribution. I have used quotation marks to identify verbatim sentences and given credit to the original authors/sources.

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# Acknowledgements

We extend our heartfelt gratitude to ***Dr. R.K. Agarwal, our College Director General***, for his visionary leadership and unwavering support that have shaped our academic journey. We also appreciate Dr. Anu Chaudhary, our esteemed Head of Department, for her guidance and encouragement.

Our sincere thanks go to ***Dr. Rajesh Prasad, our Professor Incharge***, for his invaluable mentorship during our project development. We are also deeply grateful to ***Asst. Prof. Ashish Kumar***, our esteemed mentor and project guide, for his unwavering support and profound insights.

Additionally, we extend our gratitude to all faculty members, staff, and fellow students for their support and encouragement throughout our academic journey. Their collective efforts have played a pivotal role in our success.We acknowledge with deep appreciation the contributions of all those who have supported and encouraged us along the way. Their collective efforts have played an integral role in our academic journey, and we are immensely grateful for their unwavering support and encouragement.

# Abstract

The LegalBridge project emerges as a response to the inherent challenges plaguing India's unorganized legal sector, characterized by fragmentation, corruption, and accessibility barriers. Through extensive research and consultations within the legal community, the project identifies key issues such as the lack of a centralized platform connecting legal service providers with clients, the prevalence of corruption and bribery, and the inefficiency of time-consuming legal processes. Moreover, underreporting of sensitive cases underscores the urgent need for a platform that facilitates reporting and provides support to victims.

In addressing these challenges, LegalBridge aims to revolutionize the legal service sector by creating an organized e-marketplace accessible to all citizens, eliminating barriers such as bribery and time-consuming court visits. The application caters to both clients and Legal Service Providers (LSPs), offering tailored experiences through role-based access. Clients gain autonomy in selecting preferred LSPs or posting their legal cases, while the platform streamlines the process of identifying appropriate legal expertise, thus reducing costs associated with legal services.

Transparency, user-friendliness, and inclusivity are core tenets of the LegalBridge platform, evidenced by its multilingual interface and encrypted document transfers. Through its innovative approach and commitment to addressing the root causes of unrest within the legal community, LegalBridge seeks to bridge the gap between legal service providers and clients, ultimately democratizing access to legal services and promoting a more just and equitable legal system in India.

**Project ID: 24/CS/CS-2/31**

# E-Voting System using Blockchain

A PROJECT REPORT
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We hereby declare that the work presented in this report entitled "E-Voting System", was carried out by us. We have not submitted the matter embodied in this report for the award of any other degree or diploma from any other University or Institute. I have given due credit to the original authors/sources for all the words, ideas, diagrams, graphics, computer programs, experiments, and results, that are not my original contribution. I have used quotation marks to identify verbatim sentences and given credit to the original authors/sources.

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# Acknowledgements

We would like to express our sincere gratitude to all those who have contributed to the successful completion of this project. First and foremost, we are highly indebted to Dr Rajesh Prasad, Professor In-charge, Department of Computer Science, for providing us with an opportunity to undertake a project as partial fulfilment of the requirements for the degree of Bachelor of Technology in Computer Science.

We would like to express our special gratitude to our project guide, Mr. Pronab Kumar Adhikari for giving us such attention and time. Our guide had taken great pain and effort to help us in the best way without whom this project would ever have been realized.

I would like to acknowledge the contributions of my colleagues and friends who provided valuable insights and feedback during brainstorming sessions and discussions. I am also grateful to my family for their unwavering support and understanding during the demanding phases of this project. Their encouragement and patience were crucial in sustaining my motivation.

Lastly, I express my appreciation to all those who, directly or indirectly, contributed to the realization of this project. Your support has been instrumental, and I am truly thankful.

# Abstract

Voting is a vital method for communities to express their collective will, allowing individuals to choose leaders and influence governance. Despite its importance in political, governmental, and non-governmental contexts, traditional voting methods like electronic, ballot box, and paper-based systems face numerous security risks and operational issues, leading to widespread mistrust among voters. While digital systems have transformed voting by enhancing convenience and efficiency, they also bring new challenges, such as an increased risk of electoral fraud driven by nepotism and financial incentives.

In this proposed system a method applied such as Entrusting Aadhar Card Centers with the task of conducting multilevel authentication for registered candidates, incorporating real-time verification processes. When the user demands for voting they are verified based on their Aadhar identity and allowed to choose the nearby Aadhar center for voting. Once the registration completed a unique OTP will be generated, and send in the mail as an QR code which contains encrypted OTP. On that voting day the user can be authenticated based on their QR code or the OTP and can be vote in the nearby selected hub. The facial recognition methodology is employed to verify that the appearance of the user matches the registered individual who has arrived to cast their vote. The end-end transactions are maintained in the blocks and the data transfer managed over each blockchain transactions. This solution harnesses the power of blockchain technology to enhance election transparency, protect against cyber threats, and ensure the integrity of every vote.

Project Report
on

# ROBOCON 2024 – HARVEST DAY

***Submitted in partial fulfillment of the requirements for the award of the degree of***

**BACHELOR OF TECHNOLOGY**

***in***

**Computer Science**

***by***

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We hereby declare that the work being presented in the report entitled **"ROBOCON 2024 – Harvest Day"** submitted to Ajay Kumar Garg Engineering College, Ghaziabad, in partial fulfilment of the requirements for the award of the degree of Bachelor of Technology in Computer Science of Dr. A. P. J. Abdul Kalam Technical University, Lucknow, is an authentic record of our own work carried out during a period from August, 2023 to May, 2024 under the supervision of **Mr. Puneet Saini (Asst. Professor Mechanical Engg. Department) and Mr. Gaurav Srivastava (Asst. Professor Electrical & Electronic Engg Department)**. The matter presented in this report has not been submitted to any other university or institution for the award of any degree to the best of my knowledge.

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# ABSTRACT

For thousands of years, rice has been closely associated with the people of Vietnam. Rice not only provides sustenance but also becomes a beautiful aspect of the cultural and spiritual life of the Vietnamese people. Nowadays, rice serves as both a vital food source and a strategic export commodity for Vietnam.

There is a unique form of cultivation in the traditional agricultural practices of the people living in the highland regions of Vietnam, known as terraced fields. People will choose slopes, hills, and mountains to create flat terraces for cultivating crops and planting rice. The purpose of implementing terraced fields is to prevent erosion, improve and protect the soil.

The rapid evolution of robotics technology continues to push the boundaries of innovation and problem-solving. Our team is excited to present our entry for ROBOCON 2024, an event that serves as a crucible for the brightest minds in robotics. Our project, “Harvest Day”, is a culmination of cutting-edge design, intelligent algorithms, and collaborative engineering.

Our primary objective is to address the challenges posed by ROBOCON 2024's theme, Harvest Day. We aim to showcase the versatility and adaptability of our robotic system in overcoming these challenges. Whether it be precise manipulation, efficient navigation, or intricate tasks, our robot stands ready to demonstrate its prowess.

The remarkable feature of terraced fields is that during the harvest season from around June to October, the mountain slopes resemble a piece of artistic painting carved into the mountains by the local farmers.

The terraced fields are not only beautiful but also the 'rice granary' of the highland people, utilizing the natural conditions for effective cultivation and providing a warm and prosperous life. With these significances, in recent years, terraced fields have become a highlight in tourism, attracting many domestic and international tourists. They have become a cultural beauty and a source of pride for the Vietnamese people.

Drawing inspiration from cultivation on terraced fields, the ABU ROBOCON 2024 contest hosted by Vietnam, has developed robot tasks that depict the stages of rice cultivation. These tasks include sowing, harvesting, and transporting the harvested grains to the warehouse. The underlying message is 'Efficient cultivation brings a warm and prosperous life for everyone”.