



Vasantdada Patil Pratishthan's College of Engineering and Visual Arts



ITSA Information
Technology
Students
Association

DEPARTMENT OF INFORMATION TECHNOLOGY

In Association With Information Technology Student Association



IT SYNERGY

2021-2022



Vasantdada Patil Pratishthan's College of Engineering and Visual Arts

College Vision

- To provide an environment to educate, encourage and explore students by facilitating innovative research, entrepreneurship, opportunities and employability to achieve social and professional goals.

College Mission

- To foster entrepreneurship & strengthen industry institute interaction to enhance career opportunities for the employability of students.
- To encourage collaborations with industries and academic institutes in terms of projects & internships by creating area for Research and Development.
- To build up appropriate moral and ethical skills and to promote holistic development of students through various academic, technical, social and cultural activities.

Department Vision

- To impart quality education in the field of Information Technology to meet the challenging needs of the society and industry.

Department Mission

- To provide quality education to students by including Problem Solving, Teamwork and Leadership Skills to achieve their goals in the field of Information Technology.
- To educate students for global development including entrepreneurship, employability and the ability to apply technology to real life problems.
- To develop skilled IT professionals with moral principles and empower them in lifelong learning.

PRINCIPAL'S DESK



Dr. Alam N. Shaikh
Principal & Campus Director,
VPPCOE & VA

The VPPCOE & VA is an engineering college that aims to foster personality development and knowledge in students. With advanced courses in Artificial Intelligence, Data Science, Law, Fine Arts (Applied Art and Painting), and Interior Design, the college aims to make it a world-class institution and shape students into excellent citizens. Established in 1990, the institute has attracted students from across the nation and established connections with national and international business communities. With over three decades of experience, the college offers exceptional engineering education, focusing on holistic development and innovation.

The dedicated faculty prepares students for a dynamic and competitive world, equipping graduates with top-notch education and practical skills to excel in today's rapidly evolving landscape. The institute is dedicated to nurturing genuine capabilities and profound knowledge in its students, welcoming those who strive for more than just success and aspire to become knowledge leaders. The institute acknowledges the hard work of its staff members in achieving these goals and takes pride in being recognized as one of the country's premier engineering colleges.

HOD'S DESK

Information Technology is one of the fastest growing engineering fields all over the world. Our Information Technology Program at VPPCOE & VA started in the academic year 1999-2000 with a vision to develop high quality Information Technology professionals through Quality Education and dedicated faculty seeks to combine excellence in education and research, provide students with a balance of intellectual and practical experiences that enable them to serve a variety of societal needs.

Our students are nurtured to become world-class software professionals as 'Project Managers', 'System Analysts' or 'Team Leaders' in industry or become 'Entrepreneurs' by nurturing their own creativity and innovation.

Department has the competent Faculty and dedicated Staff do work hard to groom the technical and overall personality of students through meticulously planned, outcome based curriculum delivery with co-curricular and extra-curricular enjoyable learning activities.



Dr. Rahul Khakale
HOD of IT, VPPCOE

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Dear Readers

Welcome to the latest edition of IT Synergy, your gateway to the ever-evolving world of technology. As the editorial board of this magazine, we are thrilled to embark on this journey with you, exploring the frontiers of innovation, discovery, and knowledge.

IT Synergy is our collective passion for the remarkable advancements that shape our modern lives. In today's fast-paced landscape, staying informed about the latest trends and breakthroughs is not just an option—it's a necessity. Our mission is to bring you authoritative, engaging, and accessible content that empowers you to navigate the intricate realm of technology.

The members of our editorial board, each a seasoned expert in their respective fields, are committed to curating a diverse range of topics that span from various domains of Information Technology. Our aim is to not only provide you with insights into the forefront of technology but also to inspire discussions that drive meaningful progress.

As we embark on this journey together, we invite you to explore, learn, and be inspired. Thank you for being part of the IT Synergy family. Here's to the discoveries that await us and the boundless possibilities of the future.

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UTILIZING MACHINE LEARNING FOR CRICKET MATCH ANALYSIS AND PREDICTION

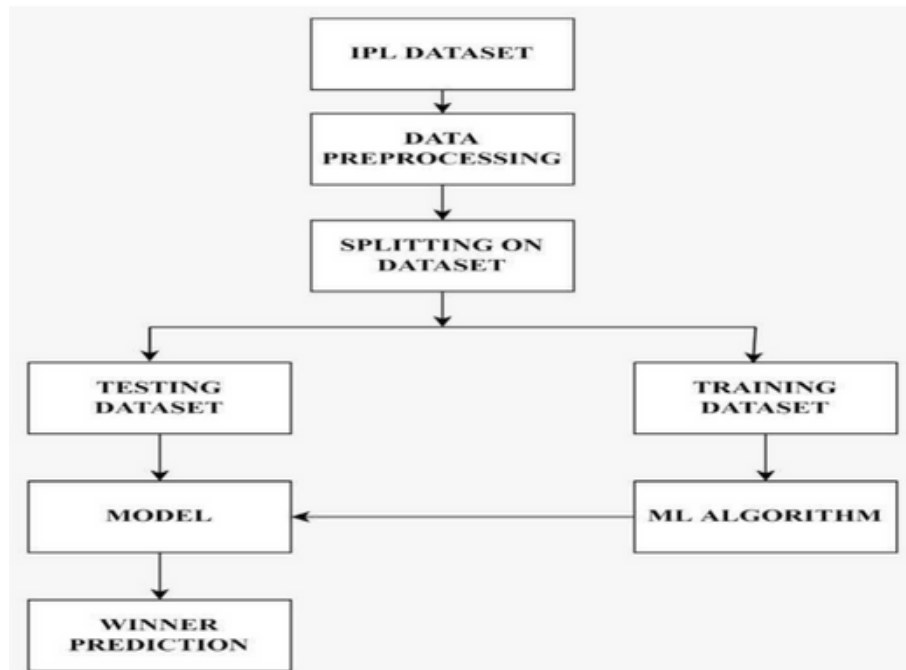


Figure 1.1: Use Case

In the contemporary landscape, Machine Learning has emerged as a paramount field for making informed predictions and facilitating better decision-making. Cricket, a globally celebrated sport, captures the hearts of enthusiasts in more than 100 countries. As fans rally behind their favorite teams, achieving victory becomes a collective aspiration. To succeed, teams must meticulously analyze their strengths and areas of expertise, thereby optimizing their performance. In a parallel vein, the task of predicting cricket match outcomes hinges on a multitude of factors, including the toss, team dynamics, venue conditions, and atmospheric influences. This research endeavors to conduct an exploratory data analysis of a cricket dataset and to forecast the victor of an IPL match. By training Machine Learning models on pertinent features, we aim to forecast the outcome of IPL matches. The application of diverse Machine Learning techniques, such as Random Forest, Support Vector Machine (SVM), Linear Regression, Logistic Regression, and Decision Trees, has been seamlessly integrated and deployed on datasets of varying dimensions to facilitate model development. This concept, with its implications for legal betting platforms, match reporting media, and fervent cricket aficionados, stands poised to offer substantial value.

Dr. RAHUL KHOKALE *1, ADITI DALVI*2, NITISH PATEL*3, SNEHA SINGH*4

ENHANCING ROAD SAFETY THROUGH TRAFFIC SIGN RECOGNITION

In the realm of road safety, one critical aspect is the ability to promptly recognize and respond to traffic signs. These signs communicate essential instructions, warnings, and information to drivers, pedestrians, and other road users. As technology advances, Traffic Sign Recognition (TSR) has emerged as a pivotal application of computer vision and machine learning. The objective is to develop systems that can autonomously detect and interpret traffic signs, thereby aiding drivers in making informed decisions and reducing the likelihood of accidents.

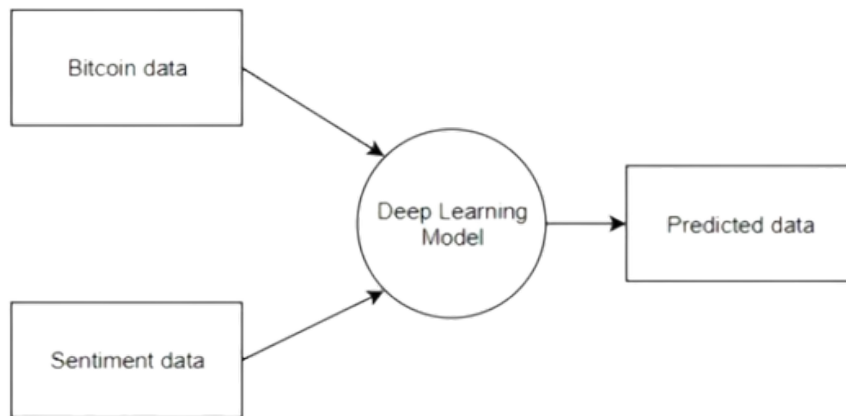
Challenges and Importance: Navigating through complex road networks requires drivers to process an abundance of information, including traffic signs that convey regulatory, cautionary, and informational messages. However, human error, distractions, and adverse conditions can compromise sign recognition. TSR addresses these challenges by automating the detection and understanding of signs, enhancing overall road safety.

Computer Vision and Machine Learning: At the core of TSR lies computer vision, a field that focuses on enabling machines to interpret and understand visual information from the environment. Machine learning algorithms play a vital role in this process by training models on vast datasets of annotated traffic sign images. These models learn to recognize distinct features, shapes, colors, and symbols associated with various signs.

Detection and Classification: TSR systems first identify potential traffic signs in the visual input, utilizing techniques like object detection. Once detected, the signs undergo classification, wherein the system assigns the detected sign to a specific category, such as speed limit, stop, yield, etc. This process enables the system to convey

*Dr. Seema Ladhe*1, Rahul D. Bagwe*2, Pritesh P. Narvankar*3, Siddhant S. Yerandkar*4*

PREDICTING BITCOIN PRICE TRENDS VIA SENTIMENT ANALYSIS



Bitcoin's emergence has ignited curiosity across diverse disciplines such as economics and computer science, driven by its fusion of encryption technology and currency principles. Within this landscape, social media stands as a dynamic reflection of public sentiments, especially on platforms like Twitter. Researchers have increasingly turned their attention to mining insights from Twitter's real-time discourse. A compelling avenue of investigation involves forecasting Bitcoin trends using sentiments expressed in tweets. This study delves into the correlation between Bitcoin's value fluctuations and the collective sentiment conveyed in tweets. Employing a Long Short-Term Memory (LSTM) network, the study endeavors to achieve this objective, with varying degrees of success.

The study probes the intricate relationship between Bitcoin's price movements and sentiments aired on Twitter. The Long Short-Term Memory network, a type of recurrent neural network adept at capturing sequential dependencies, serves as the bedrock of our analysis. The LSTM model seeks to unearth patterns connecting shifts in Bitcoin's value with the emotional contours of tweets.

*SAILI KADAM*1, MANASA NAGILLA*2, DEEPAK JHA*3, SMRUTI PATIL*4*

IN-DEPTH EXAMINATION OF FOOTBALL PITCH DYNAMICS

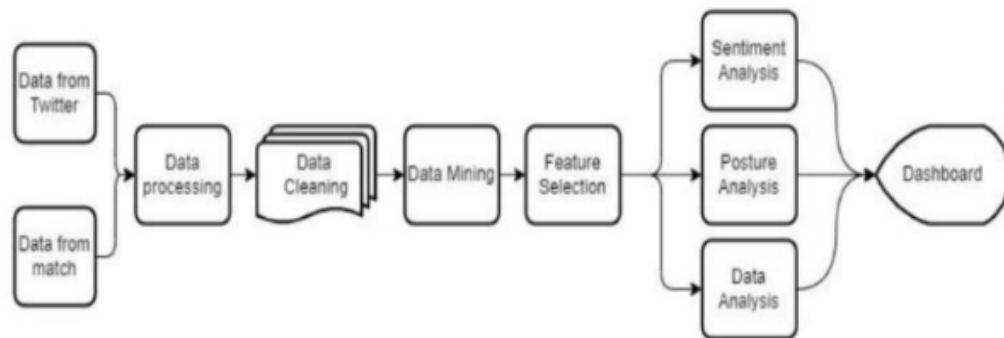


Fig 1.1 System workflow

Football, a globally cherished sport, involves two teams of 11 players each competing with a spherical ball. Played across the world, football's universal appeal has solidified its position as a beloved pastime. The game unfolds on a rectangular pitch, featuring goals at either end. The objective is simple yet exhilarating: score more goals than the opposing team within a standard timeframe of 90 minutes. In recent years, the analysis of team sports data has surged in popularity, particularly in the realm of soccer, drawing both research and practical interest. This surge is a testament to the sport's wide-ranging appeal and the potential insights that lie within its intricacies.

Soccer's dynamic nature calls for innovative approaches to analysis. Heat maps, correlation studies, players' trajectories, pattern recognition, and match animations are among the techniques that have been leveraged. The analysis of a player's historical performance serves as a cornerstone for shaping future strategies and outcomes. While visualization and video analysis are prevalent, bridging the gap between the two has remained a challenge.

In response, we present a groundbreaking solution that seamlessly integrates performance insights and strategy assessment. This innovation empowers sports club managers by offering a comprehensive toolset. Managers can delve into real-time performance data, pinpointing strengths

The convergence of performance insights and strategy evaluation within our solution marks a transformative step in football analysis. By providing a comprehensive toolkit, we enable managers to elevate their team's performance and drive success in the dynamic world of football.

*Prof. KIRAN DESHMUKH*1, BHUSHAN PANCHAL*2, ATHARVA KATRE*3, SAURABH JOSHI*4.*

EMPOWERING VISUALLY IMPAIRED: OBJECT, COLOR, AND DISTANCE DETECTION SYSTEM

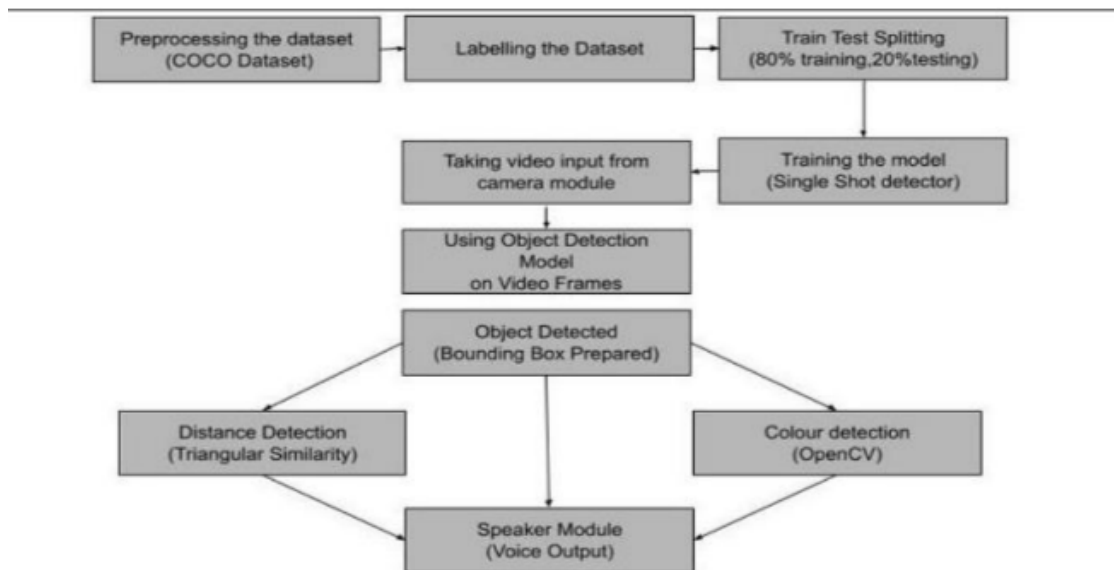


Fig 1.1 Block Diagram of the Computer Vision System.

Computer Vision is dedicated to deciphering visual data, while image processing refines raw visuals for diverse applications. It involves algorithm-driven digital image processing. Recent advancements underscore the dynamic evolution of computer vision and image processing.

Deep learning, a subset of machine learning, entails neural networks with multiple layers. These networks strive to simulate human brain behavior, learning from abundant data. While single-layer networks offer approximations, multi-layer setups optimize accuracy. Deep learning revolutionizes computer vision by tackling intricate tasks like object detection, tracking, and surveillance.

Object detection, encompassing face recognition, object tracking, and surveillance, progresses exponentially with deep learning's prowess. This breakthrough technology simplifies complex computer vision challenges, paving the way for versatile solutions.

Our proposed object, color, and distance detection system holds transformative potential for the visually impaired. By harnessing computer vision and deep learning, it empowers them to identify objects, colors, and distances. This breakthrough enriches their everyday experiences, fostering independence and understanding.

*Prof.ASHWINI PHALKE*1, NISHAD KADAM*2, VARUN SINGH*3, SHASHANK SINGH*4*

EMPOWERING FARMERS WITH INFORMED DECISION-MAKING: COMPREHENSIVE MARKET ANALYSIS

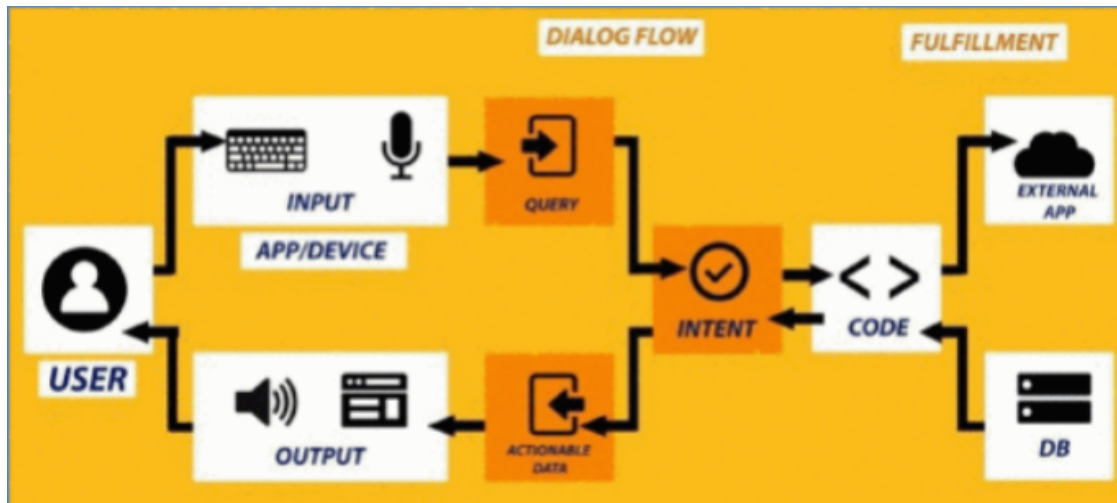
India, as an agrarian nation, witnesses the majority of its population engaged in farming, a vital cornerstone of its economy. Nestled in rural landscapes, these farmers diligently cultivate crops that nourish the entire nation. Yet, amidst their pivotal role, challenges persist, particularly in securing fair prices for their produce in the market. The absence of just compensation often deprives them of rightful profits.

The foundation of our solution rests on the premise of equitable compensation. We envision a scenario where farmers can maximize the value of their yields by selling them directly to wholesale vendors. A central element to achieving this is comprehensive market analysis, a tool that illuminates industries, customers, competitors, and diverse market dynamics. This analysis further elucidates the intricate interplay between supply and demand, thereby furnishing invaluable insights for strategic decision-making.

In essence, our endeavor seeks to breathe new life into Indian agriculture by empowering farmers with the ability to navigate the market landscape effectively. Through meticulous analysis, we aspire to create a harmonious ecosystem where farmers receive the deserved rewards for their tireless dedication to feeding the nation.

*Prof. KIRAN DESHMUKH*1, SHUBHAM MASTUD*2, SHARAN SHETTY*3,
HARSHAL BHALEKAR*4*

TRANSFORMING HEALTHCARE WITH AI-POWERED CHATBOT INTEGRATION



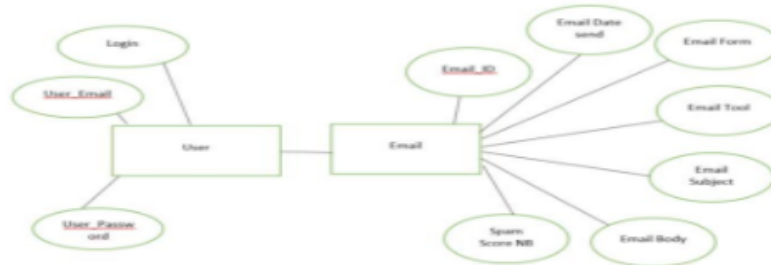
In response to this paradigm shift, a Multilingual Conversational Bot, bolstered by the prowess of Natural Language Processing (NLP), emerges as a game-changer. Engineered to simulate human-like interactions, this bot serves as a virtual doctor, offering primary healthcare education, information, and advice to chronic patients. The architecture is adeptly designed with a serverless framework, amalgamating the doctor's expertise by offering preventative measures, home remedies, interactive counseling, healthcare insights, and symptom explanations for prevalent diseases, especially within rural India.

A significant contribution of this study is the proposition of the "Aapka Chikitsak" conversational bot, hosted on the Google Cloud Platform (GCP). This novel approach significantly enhances healthcare access in India, bridging the gap between demand and supply through intelligent consultations. By seamlessly integrating AI into healthcare delivery, the bot overcomes geographical barriers, facilitating timely and quality care, thereby empowering society with enhanced healthcare support.

In essence, the application of AI in telemedicine is a pivotal step towards ensuring uninterrupted healthcare services amidst the pandemic. The transformative potential of AI-powered conversational bots, as demonstrated by the "Aapka Chikitsak," exemplifies the ability to revolutionize healthcare accessibility and delivery, transcending traditional boundaries and enabling a healthier and more connected world.

*Prof. Sonali Pakhmode*1, ROHIT PATIL*2, HIMANSHU PATIL*3, PRAJWAL BHARTI*4*

ENHANCING COMMUNICATION: MACHINE LEARNING FOR EMAIL SPAM DETECTION



The relentless surge in unwanted bulk emails, commonly referred to as spam, has burgeoned into a formidable issue in the digital landscape. Spammers, the instigators behind this deluge of commercial emails, engage in sourcing email addresses from diverse sources such as websites, chatrooms, and even through viruses. This escalating phenomenon has given rise to grave concerns, as the proliferation of email spam has reached alarming proportions.

As the internet user base continues to expand rapidly, the affliction of email spam has grown proportionally. A disconcerting facet of this growth is the utilization of spam emails for illicit and unethical purposes, including phishing and fraudulent activities. The potential risks associated with spam emails have transcended inconvenience, extending to the realm of cyber threats. These threats manifest through malicious links embedded within spam emails that can compromise the security and integrity of computer systems.

Perpetrators of spam often create fictitious profiles and email accounts, skillfully assuming the guise of legitimate individuals to deceive recipients. The targets of such fraudulent emails are often individuals who lack awareness of these nefarious schemes. In this landscape, there exists an urgent necessity to differentiate between genuine communication and spam. This project sets out to address this pressing need by leveraging machine learning techniques to identify and classify fraudulent emails.

*Prof. Medha Kulkarni*1, Rahil Shaikh*2, Sanket Pachpute*3,
Riyaz Khan*4, Manjiri Panchal*5*

EMPOWERING DOCUMENT CLASSIFICATION WITH INTELLIGENT MACHINE LEARNING

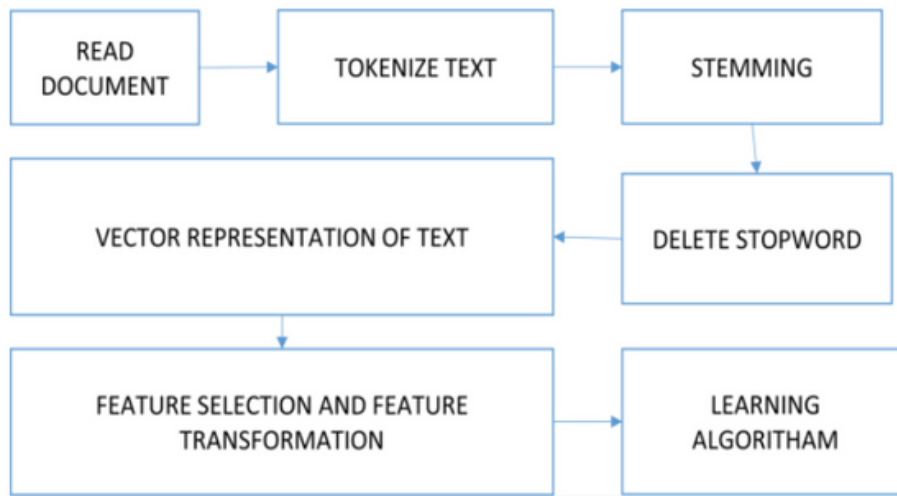


Figure 1.1 WORKFLOW DIAGRAM

In the age of digital transformation, the shift towards digitized and intelligent processes is shaping the way we handle information. With the prevalent use of soft copy documents for presentation, preparation, and sharing, the realm of document classification has risen to prominence. This phenomenon is making profound impacts across various domains, including spam filtering, email routing, language identification, genre classification, sentimental analysis, and readability assessment. The art of classifying digital documents is becoming increasingly crucial, offering invaluable insights that drive business efficiencies and informed decision-making.

In the contemporary digital landscape, machine learning stands as a cornerstone for achieving effective document classification. Its capabilities are instrumental in simplifying and automating what was once a labor-intensive human task. By harnessing machine learning techniques, documents available online can be efficiently classified, significantly augmenting different business processes.

In essence, this report illuminates the profound significance of document classification in our digitally evolved world. Through real-world examples and meticulous analysis, it underscores how smart techniques driven by machine learning redefine information management, revolutionizing efficiency and decision-making across a spectrum of applications.

*Prof. Pravin Patil*2, Priyadarshini Iyer*, Khushboo Gupta*3, Darshan Rathod*4*

ARTIFICIAL INTELLIGENCE-ENHANCED JOB PORTAL SOLUTION

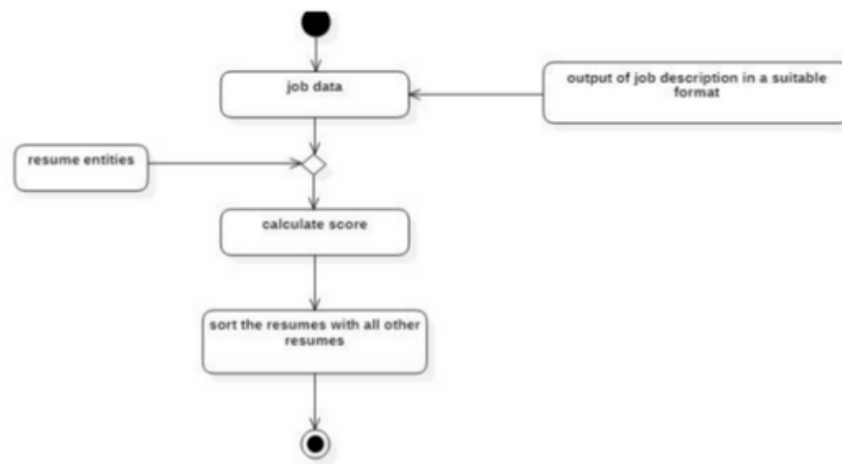


Figure 1.1 Flowchart

In recent times, the landscape of e-recruitment has burgeoned, with over 50,000 online recruitment sites emerging. The architects of these platforms have harnessed diverse strategies to efficiently connect prospective candidates with the specific job profiles offered by companies. A subset of these platforms has successfully incorporated classification techniques, effectively categorizing candidate resumes for various job postings.

This paradigm involves a meticulous comparison of each candidate's resume against every available job posting on the platform. The overarching goal is to present candidates with job opportunities that align with their qualifications and experiences. While these approaches have demonstrated impressive accuracy and precision, they do grapple with a notable challenge: time complexity.

In summary, the evolution of e-recruitment platforms represents a pivotal junction in the world of employment. As the industry pioneers navigate the complex landscape of candidate-job matching, the focus remains on optimizing efficiency without compromising the precision that users have come to expect. This pursuit is poised to transform online recruitment, shaping a future where job seekers and companies seamlessly connect with one another.

*Prof. DARSHANA TAMBE*1, PRATIK NIKUMBE*2, ANIKET SAMEWAR*3, ARSAD KHAN*4*

ADVANCING SOFTWARE QUALITY: BUG TRACKING AND REPORTING SYSTEM

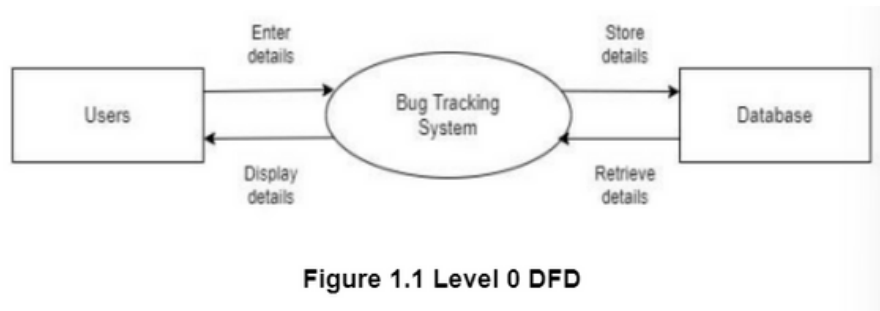


Figure 1.1 Level 0 DFD

The essence of our solution lies in the creation of a sophisticated tracking system. This system encompasses a repository for uploading, searching, and storing bug-related data, encompassing critical attributes such as timing, type, severity, authenticity, and resolution status. Our strategy centers on the development of a web application that allows seamless storage, retrieval, and uploading of project files, catering to the specific requirements of bug detection.

This approach holds paramount importance for software engineers, offering the flexibility to navigate through project files and streamline the debugging process, regardless of geographical constraints. By bridging the gap between location and debugging, our Bug Tracking System empowers developers with access to a global platform.

The Bug Tracking System resonates as a holistic solution, encompassing bug detection, management, and prediction. It redefines how developers and teams tackle software defects, fostering enhanced collaboration, efficient management, and improved software quality. Ultimately, our system aligns with the pursuit of creating robust, reliable software products that thrive in the dynamic realm of modern technology.

*Prof. MEDHA KULKARNI*1, ABHISHEK KARMOKAR*2, SANCHITA KOLAMBE*3, SALONI MUNDERGI*4*

REVOLUTIONIZING LUNG CANCER DIAGNOSIS: ADVANCED DETECTION SYSTEM

Existing pedagogical approaches for teaching algorithmic analysis and design have exhibited limitations in fostering the construction of effective mental models and representations among students. Conventional methods, though valuable, sometimes fall short in enabling a robust understanding of the complex concepts and processes that underlie algorithms.

Visualization stands as a potent educational tool, particularly in demystifying algorithms designed for similar end purposes. By juxtaposing various sorting algorithms, for instance, learners can gain deeper insights into their operational disparities, functionality nuances, and inherent features. This nuanced understanding becomes instrumental in optimizing systems and applications, tailoring algorithmic choices to specific needs.

In summary, visualization serves as a beacon illuminating the path to algorithmic mastery. Through dynamic simulations and interactive visual aids, it transcends traditional barriers, equipping both educators and learners with a holistic toolset to navigate the complexities of algorithms and programming.

*Prof. KIRAN DESHMUKH*1, Yash Pingale*2, Kalpesh Sawant*3, Sumit Thakur*4*

UTILIZING CHEST X-RAY IMAGES FOR COVID-19 DETECTION.

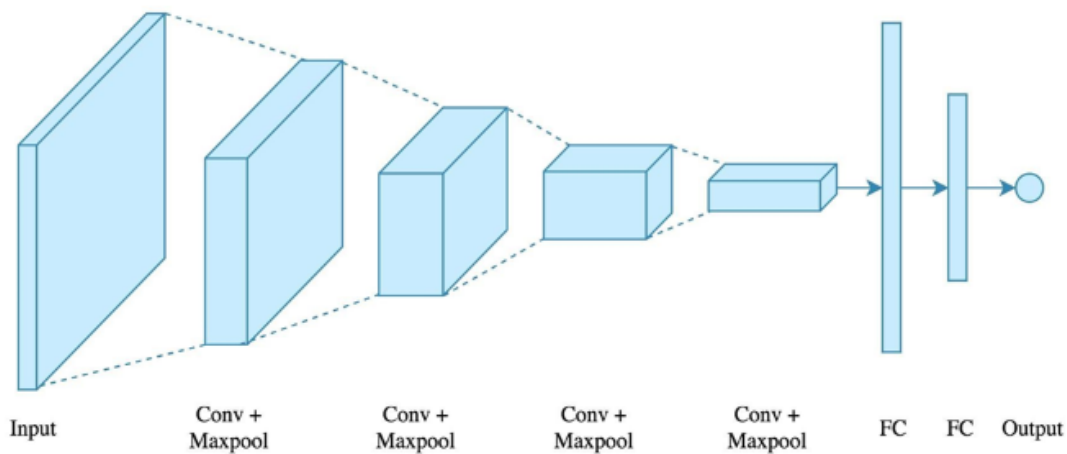


Figure 1.1: General CNN architecture

From the outset of 2020, the global impact of COVID-19 has been profound. The loss of life has been staggering, and the worldwide economy has been thrown into turmoil. Despite nearing the close of the year, a viable solution to this lethal virus remains elusive. The prospect of a cure or vaccine remains distant until at least the latter part of 2021.

Given these circumstances, the most prudent path forward for humanity is to adopt a strategy of prevention. This involves minimizing activities that could expose individuals to the risk of contracting the disease. This strategy encompasses adhering to social distancing guidelines, maintaining a safe physical distance of 1-2 meters from others, which effectively reduces the potential for spreading the coronavirus. Another crucial aspect is isolating infected individuals until their symptoms abate. If someone exhibits symptoms like fever or difficulty breathing, they should refrain from attending public places or gatherings.

Our solution takes the form of a web application designed to ascertain the COVID-19 status of individuals based on their chest X-ray images. The importance of this application is magnified by its cost-effectiveness, a significant advantage in a time of economic hardship. Given the financial challenges that many are facing, individuals need not be burdened with the cost of COVID-19 testing.

By embracing technology and scientific advancements, our initiative contributes to the ongoing battle against the pandemic. It empowers individuals and healthcare practitioners to make informed decisions that safeguard public health, thereby fostering a collective response to this global crisis.

*PROF.SONALI PAKHMODE*1,VINAY MEDHEKAR*2, ADITI NAGRE*3, PRATHAMESH PATIL*4*

REVOLUTIONIZING HEALTHCARE WITH ADVANCED HEART DISEASE PREDICTION SYSTEM

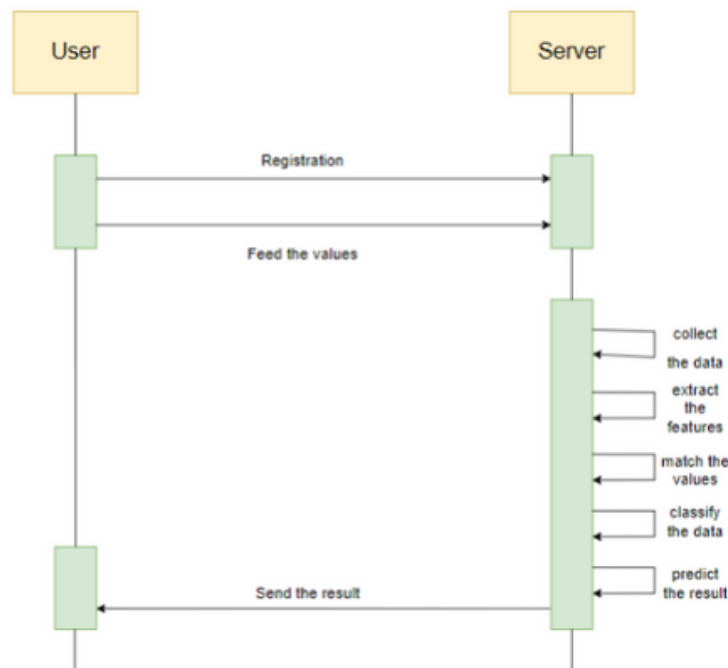


Figure 1.1 Use Case Diagram

The realm of healthcare is an indispensable facet of human life, encompassing a diverse range of disciplines within the expansive landscape of medical science. Within this sector, the business of health concerns holds a prominent position. However, the healthcare industry is characterized by an immense reservoir of data, often containing concealed insights crucial for effective decision-making. Unearthing these concealed patterns through data mining techniques has the potential to revolutionize the field.

In the realm of cardiovascular diseases, numerous tests are traditionally employed for detection. Nonetheless, data mining has the capacity to streamline this process by uncovering relevant patterns and minimizing the need for excessive tests. A significant challenge, however, lies in the scarcity of analytical tools capable of deciphering hidden information to yield precise and effective test results.

In summary, this endeavor exemplifies the transformative potential of data mining in the healthcare domain. By melding cutting-edge algorithms with medical insights, it aspires to empower medical professionals with improved predictive capabilities, revolutionizing the landscape of heart disease diagnosis and contributing to more proactive and informed healthcare decisions.

Prof. VEDIKA AVHAD*1, ADITI PATIL *2, UZMA KHAN*3, AFROZ SHAH*4 s

ELEVATING HEALTHCARE SERVICES WITH AN AI-POWERED CHATBOT.

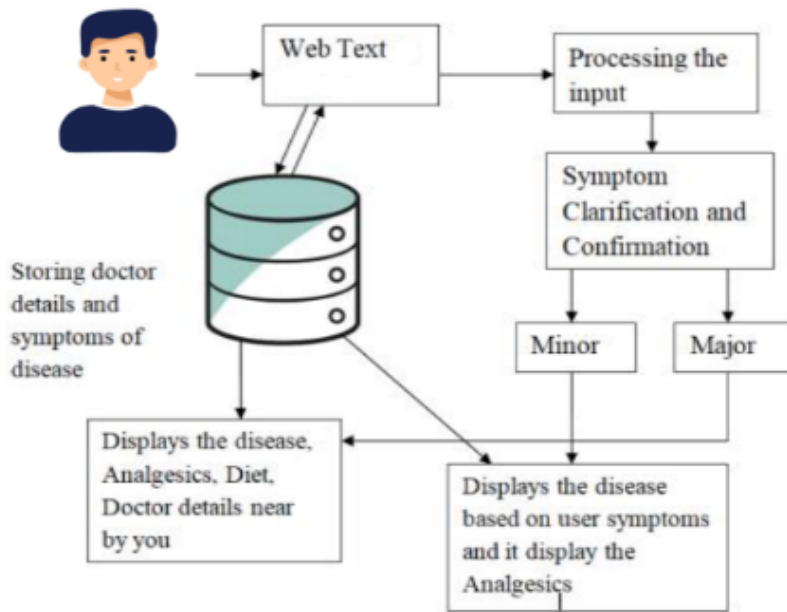


Figure 1. Flow Diagram

Since the identification of the Coronavirus (nCOV-19), its rapid spread has catapulted it into a global pandemic. This surge in cases presents an immense challenge for healthcare practitioners worldwide, particularly in managing the overwhelming influx of patients. The situation is particularly dire in remote regions, where accessing timely medical expertise in the midst of an outbreak poses significant hurdles.

In response, the strategic implementation of a meticulously designed chatbot emerges as a potential solution to alleviate the predicament faced by patients residing in remote areas. The chatbot's capabilities span beyond mere engagement; it can effectively disseminate crucial information regarding preventive measures, real-time virus updates, and offer solace to counteract the psychological toll of isolation and fear.

This study unfolds the blueprint of a sophisticated AI-powered chatbot tailored for diagnosing and providing immediate recommendations to individuals potentially exposed to nCOV-19. The ramifications of this approach are far-reaching. Not only does the chatbot amplify the dissemination of life-saving information, but it also functions as a virtual health ally, enhancing patients' self-care capacity during a critical time. By establishing a conduit to medical expertise, the chatbot effectively bridges the gap between remote areas and timely healthcare intervention, a feat that holds immense promise in mitigating the adverse effects of the pandemic.

Prof. ASHWINI PHALKE*1, RIDDHI SHETTY*2, ANKITA BHOSALE*3, PANKAJ VERMA*4

UTILIZING MACHINE LEARNING FOR ANTICIPATING CUSTOMER ATTRITION

Customer churn, a key performance metric, denotes the proportion of customers discontinuing engagement with a company's product or service within a specified timeframe. The churn rate is determined by dividing the count of departing customers during that interval, such as a quarter, by the initial customer count. This attrition hampers business growth, necessitating an established approach to quantify customer churn over defined periods.

Churn prediction entails identifying customers at risk of unsubscribing from a service by analyzing their interaction patterns with the offering. Our objective is to construct a Machine Learning framework for Customer Churn Prediction. Leveraging a telecommunications dataset, our focal point is to uncover prevailing catalysts driving customer churn. This endeavor revolves around a binary classification task: segregating customers into churned and retained categories based on their activities. Our preferred model choice is Logistic Regression due to its robustness and capacity to furnish intelligible insights. This predictive method offers both performance and interpretability. By implementing Logistic Regression, we intend to forecast whether a customer is likely to churn. Subsequently, we harness the power of XGBoost, a boosting algorithm, to refine and train the predictive model using the identified churn-related attributes.

By reimagining customer churn prediction as a dual-phase process comprising Logistic Regression and XGBoost refinement, we embark on an analytical journey to apprehend and foresee customer behaviors that steer churn. The foundation of this venture lies in discerning the intricate interplay between customer actions and churn propensity, aiming to empower businesses with foresight to mitigate attrition effectively.

*Prof.Vedika Avhad*1,Yash Pandit*2, Neil Joshi*3, Yash Singh*4*

UTILIZING FUSE FOR EFFECTIVE DATA DEDUPLICATION IN FILE SYSTEMS

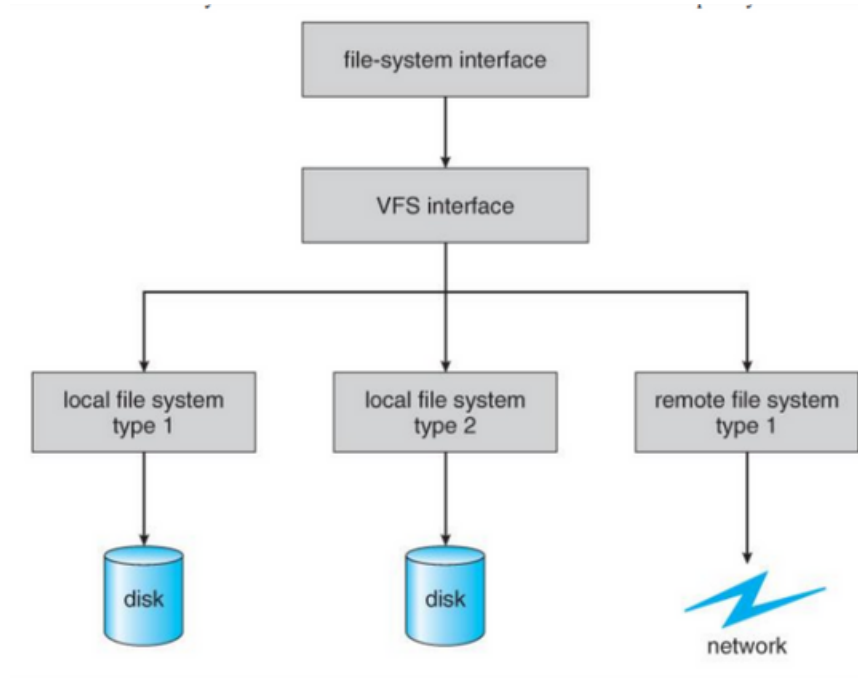


Fig 1.1 DFD of Effective data duplication

This study embarks on an exploration of diverse machine learning methodologies aimed at effectively forecasting personality traits through the analysis of curriculum vitae (CV) data. The contemporary landscape reveals a staggering surge in individuals seeking employment opportunities, juxtaposed with a dwindling availability of jobs. This discrepancy necessitates an alternative to the conventional, labor-intensive approach of manually sifting through CVs to identify the most compatible candidates for specific roles.

In response, this research seeks to implement real-time applications that not only streamline CV assessment but also unveil insights into the individual's personality traits.

Amidst this endeavor, the paramount objective is to alleviate the challenges faced by recruiters and hiring managers in making optimal candidate selections. By leveraging cutting-edge machine learning techniques, this system scrutinizes CVs and discerns the underlying personality attributes of applicants. Personality prediction, historically a pivotal domain within psychology, finds a novel dimension in computer science as it intersects with the realm of user profiling. This paper embarks on a comprehensive review of the prevailing research in personality prediction, facilitating an in-depth understanding of its evolution.

UTILIZING DEEP LEARNING FOR PNEUMONIA DIAGNOSIS

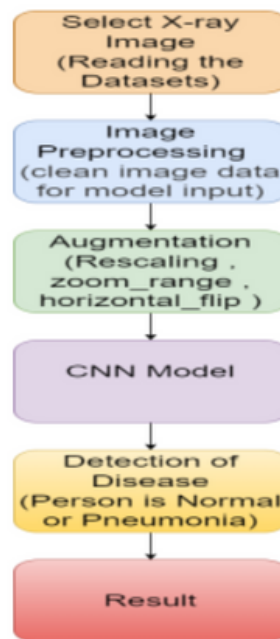


Fig 1.1 Flowchart of Pneumonia Diagnosis

The World Health Organization (WHO) has underscored the alarming threat posed by pneumonia, with recent estimations revealing over a million premature deaths worldwide. Of grave concern is the fact that nearly 15% of all child fatalities under the age of five are attributed to pneumonia, accounting for approximately 808,694 children in 2017 alone. This global menace impacts around 450 million individuals annually and held the position of the fourth leading cause of death in 2016.

Pneumonia's potential to inflict dire consequences is undeniable, necessitating early detection and diagnosis for effective treatment and recovery. Central to diagnosis is the utilization of chest X-rays, a modality crucially interpreted by expert radiologists. The gravity of pneumonia's impact, especially on the elderly, underscores the imperative of timely identification. Swift diagnosis proves to be a cornerstone in mitigating this life-threatening ailment and safeguarding numerous lives.

The crux of the challenge revolves around constructing an adept algorithm capable of accurately identifying whether an individual is grappling with pneumonia by closely examining their chest X-ray. By merging cutting-edge deep learning methodologies with medical expertise, this initiative bridges the gap between technology and healthcare, ultimately contributing to timely and precise pneumonia diagnosis.

*Prof. VIJAYA SAGVEKAR*1, MANSI INCHANALKAR*2, VISHAL JAISWAL*3, AAKASH KAWADE*4*

PREDICTING STOCK MARKET TRENDS USING MACHINE LEARNING & DEEP LEARNING

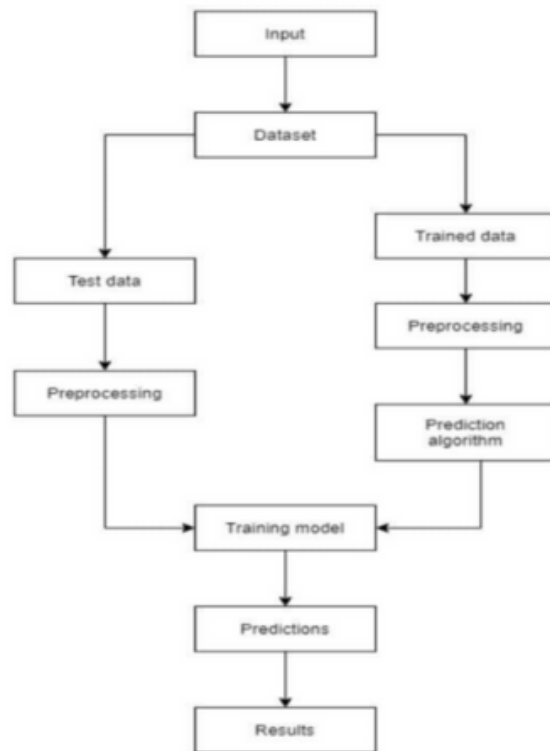


Fig 1.1 Flowchart of Stock Market Prediction System

Amidst the global surge in health-consciousness, where individuals are increasingly prioritizing their weight, adopting healthier dietary habits, and striving to make informed nutritional choices, the significance of a comprehensive calorie and nutrition measurement system becomes all the more apparent. Such a system holds immense potential to aid individuals, as well as dietitians, in effectively monitoring and managing daily food intake, leading to improved health outcomes. Proposing a dynamic solution in the form of a responsive website, this innovation serves as an invaluable resource for promoting overall well-being. Rooted in reputable sources, including gym exercise books, the website is distinctively designed to offer novel insights into fitness and nutrition. As the global pursuit of healthier lifestyles continues to gain momentum, this innovative nutritional measurement system stands poised to empower users with the knowledge and tools needed to make informed dietary decisions. By merging advanced AI capabilities with established dietetic principles, the system enriches the landscape of health management, ultimately enabling individuals and professionals alike to embark on a journey towards holistic well-being.

*Prof. DARSHANA TAMBE*1, SANKET KUMTHEKAR*2, AYUSHI SAIGAONKAR*3, ABHISHEK BANSODE*4*

ENHANCING BRAIN TUMOR DIAGNOSIS THROUGH AI ASSISTANCE

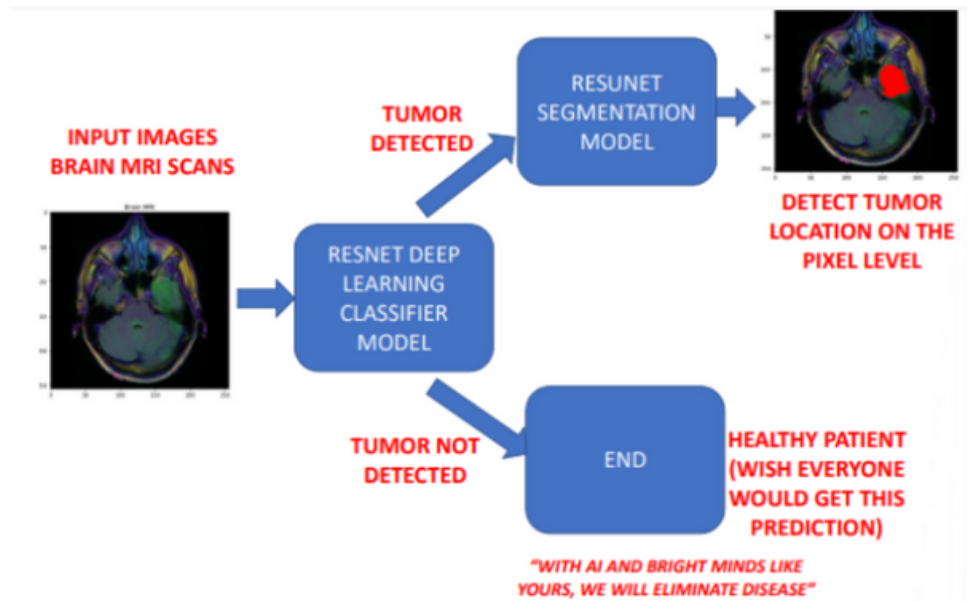


Fig 1.1: Overall Procedure

Utilizing the Power of Deep Learning for Enhanced Brain Tumor Detection

In our quest to revolutionize disease diagnosis, we've harnessed the capabilities of deep learning, a cutting-edge technology proven to excel in disease detection. Our dedicated team has amassed a comprehensive collection of brain MRI scans, laying the foundation for the creation of a groundbreaking model aimed at swiftly and accurately identifying and pinpointing brain tumors.

Our visionary approach involves constructing a multi-layered deep learning pipeline, meticulously designed for both classification and segmentation tasks. This innovative process entails inputting brain MRI scan images into a Resnet Deep Learning Classifier Model. The model's outputs are twofold: one signifies the presence of a tumor, while the other confirms its absence. In the case of tumor detection, the image is seamlessly transferred to our Resnet Segmentation Model, which operates at a pixel level. This empowers us to precisely identify the tumor's location. Conversely, when no tumor is detected, the patient can be confidently categorized as healthy

*Dr. Rahul Khokale*1, Priti Wagralkar*2, Om bagwe*3, Chaitanya amle*4*

COLLEGE-CENTRIC SOCIAL MEDIA NETWORK: FOSTERING DIGITAL CAMPUS CONNECTIONS

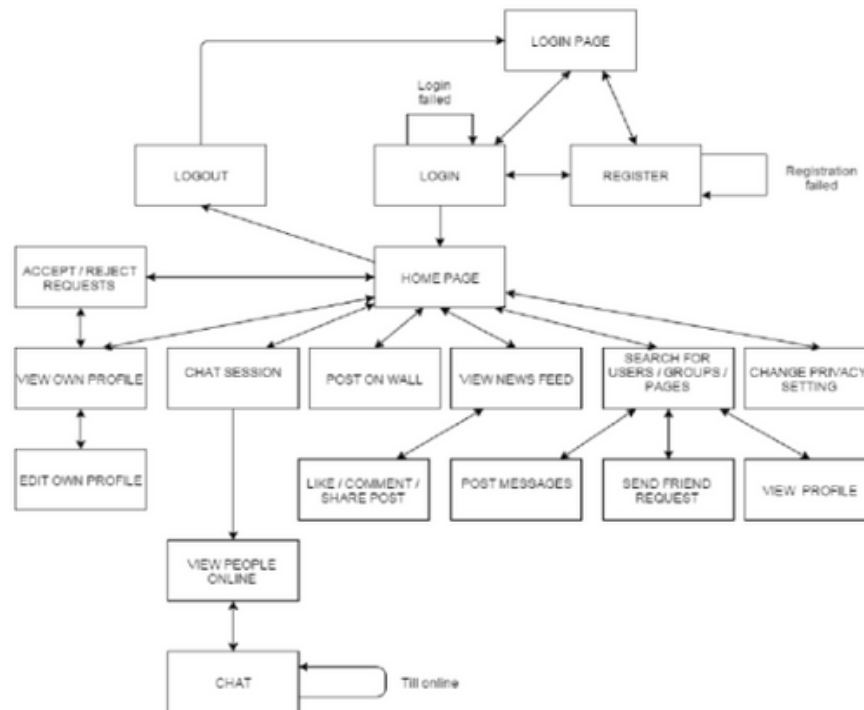


Fig. 4.2 UI Flow of the system

Exploring the Dynamics of Social Media Usage in Higher Education

In today's interconnected world, social media and its accessibility through various platforms have become integral aspects of virtually every community. In this article, we delve into the discourse surrounding the merits and demerits of employing social media best practices in higher education and beyond. Our study investigates the motivating factors and patterns of media engagement within a prominent business school. Through an online survey administered to stakeholders of the college, we unveil the nuances of media consumption behaviors, shedding light on the reasons behind their utilization of social platforms. This encompasses diverse purposes spanning education, entertainment, and fostering interpersonal connections. Notably, our research underscores a substantial upsurge in interactions within these channels over a span of several years.

Prof. Vinod Sapkal*1, Pravin Bhati*2, Sakshi Kale*3, Sonal Bijitkar*4

EXPLORING DEEP LEARNING FOR DETECTING DEPRESSION THROUGH TEXT ANALYSIS

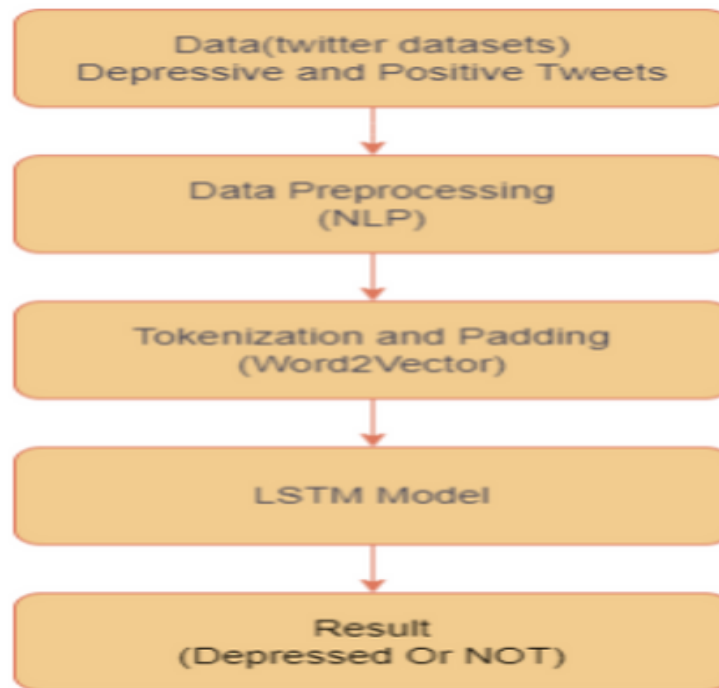


Fig 1.1 Data Flow Diagram

"Distinguishing Depression from Ordinary Mood Fluctuations through Textual Analysis"

Depression transcends the realm of typical mood shifts and transient emotional reactions to life's challenges. Particularly when prolonged and of moderate to severe intensity, depression can escalate into a grave health issue. Its impact extends to significant suffering and impaired functioning in workplaces, educational settings, and family dynamics. In its most severe form, depression tragically culminates in suicide, contributing to an alarming annual toll of nearly 800,000 lives lost.

The emergence of internet-based platforms has yielded substantial insights into user behavior and data patterns. Our endeavor centers on harnessing the potential of natural language processing to glean insights from Twitter posts, with a specific emphasis on analyzing emotional states linked to depression. By scrutinizing individual tweets, we employ a curated lexicon to categorize them as either neutral or negative. This approach serves as a foundation for detecting indications of depression tendencies within the text.\

*Prof. Vijaya sagvekar*1, Shantanu pawar*2, Akshay doke*3, Shridhar kengar*4.*

VOICE-CONTROLLED DIGITAL NOTICE BOARD: STREAMLINING COMMUNICATION

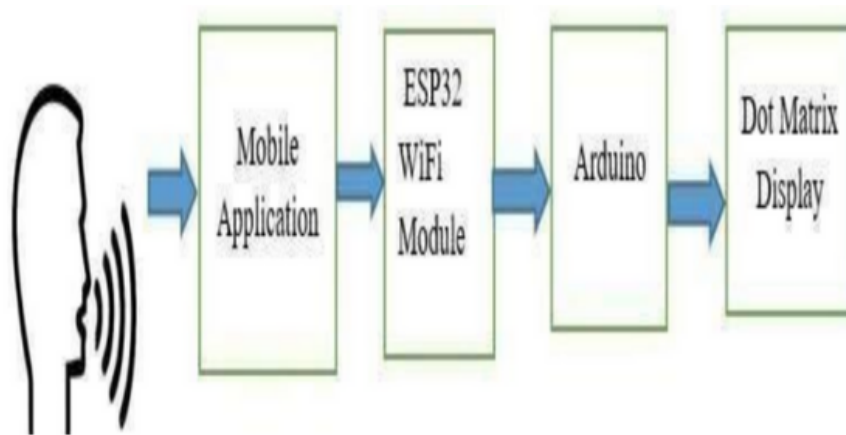


Figure 1. Block Diagram of Proposed System

"Revolutionizing Communication through Wireless Technology: The Voice-Controlled Smart Notice Board"

In our rapidly evolving world, wireless technology has emerged as a cornerstone for enhancing efficiency, productivity, data transmission speed, and reducing both human effort and infrastructure demands. A prominent testament to this transformation is the evolution from traditional notice boards to the advent of intelligent, or "smart," notice boards. These digital displays not only significantly reduce paper usage but also curtail manual tasks and operational costs associated with conventional billboards.

Our innovation, tailored to meet the requirements of Indian universities, centers on a remotely accessible digital display that adheres to institutional standards in real-time. At its core, our project harnesses the power of speech-to-text translation technology. Operating through a sophisticated mobile application, users can conveniently transmit messages or data. The Esp-32 Wi-Fi module seamlessly receives and relays this information to an Arduino system. Subsequently, the Arduino orchestrates the transfer of data to a Dot Matrix Display, culminating in the display of the message or data. Notably, until a new communication is dispatched, the Dot Matrix Display dutifully retains and showcases the previous message.

This innovative solution is poised to revolutionize communication dynamics, offering a modernized and streamlined approach that aligns with the demands of the digital era.

*Prof. Vijaya sagvekar*1, Kalpesh pawar*2, Saurabh more*3, Harish sapuram*4.*

ADVANCED VISUAL ANALYSIS WITH DEEP LEARNING: IMAGE SEGMENTATION AND OBJECT RECOGNITION”

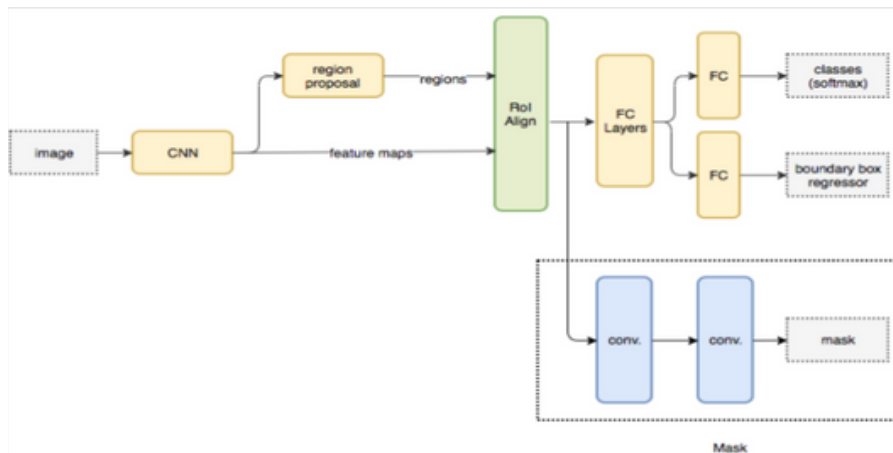


Figure 1.1: System Overview of an Image Segmentation Process

"Emulating Human Visual Processing with Deep Learning: Image Segmentation and Object Recognition"

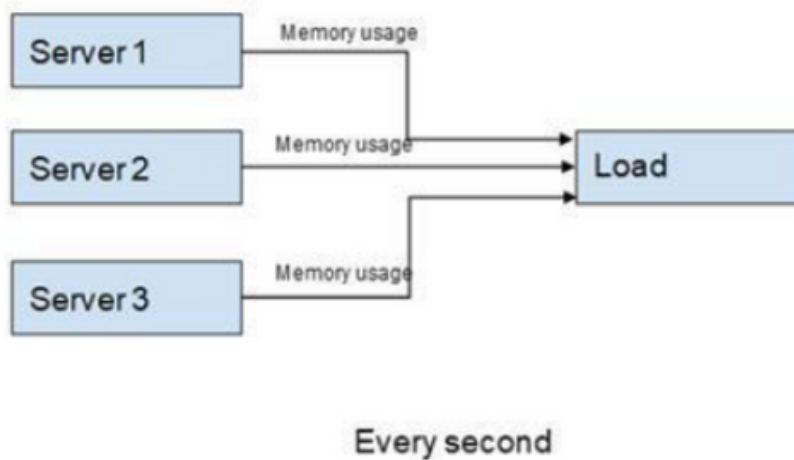
The human brain is an adept analyzer, effortlessly comprehending and distinguishing the myriad of objects our eyes perceive. Remarkably, it processes the entirety of a visual scene with precision, allowing us to differentiate objects from their backgrounds and neighboring entities. Image segmentation is akin to this cognitive process, involving the partitioning of a digitized image into discrete subsets, typically pixels. This simplifies the image's complexity, paving the way for more straightforward analysis.

Encompassing deep learning techniques such as Convolutional Neural Networks and Recurrent Neural Networks, image segmentation is executed using pre-trained datasets. This process effectively detects and classifies objects within images. The versatility of image segmentation is far-reaching. Instance Image Segmentation, for instance, can revolutionize automated vehicles by enabling real-time differentiation of objects—be it pedestrians, vehicles, or traffic signals—within their field of vision. Additionally, this technology finds application in diverse domains. For instance, it can identify defects in circuit boards, while in the realm of medical science, leveraging pre-trained datasets enables the early-stage detection of tumors.

By replicating the intricacies of human visual processing through advanced deep learning, image segmentation and object recognition unlock a host of transformative applications across industries.

Dr. Seema Ladhe*1, Sahil wani*2, Devansh upadhyay*3, Amol Warse*4

IMPLEMENTING MACHINE LEARNING FOR OPTIMIZED APPLICATION LOAD BALANCING



To meet the burgeoning demands of organizations for seamless application performance, managing incoming traffic effectively is essential. Employing a load balancer to determine server readiness for incoming traffic plays a pivotal role in ensuring optimal user experiences and rapid request processing. By intelligently distributing requests, this approach not only enhances user satisfaction but also significantly reduces request processing times. The load balancer serves as the orchestrator for request allocation across multiple servers, effectively achieving load distribution.

In this paper, we introduce a novel solution aimed at mitigating the issue of uneven server utilization, where certain servers are strained while others remain underutilized. Our proposed load balancer introduces a refined methodology that directs incoming requests exclusively to servers capable of efficiently processing them, utilizing up-to-the-moment data insights. This innovative load balancing mechanism empowers organizations to make the most of their resources while delivering improved application performance.

In conclusion, our proposed load balancing approach revolutionizes the way organizations manage incoming traffic and allocate workloads to servers. Through real-time data analysis and dynamic decision-making, our load balancer ensures that each request is directed to the most capable server at that precise moment.

*Prof. Smruti Patil*1, Shubham Mishra*2, Rohit Lotlikar*3, Manish Vishwakarma*4*

EMOJIFY: UNLEASHING CREATIVITY WITH DEEP LEARNING FOR PERSONALIZED EMOJI GENERATION

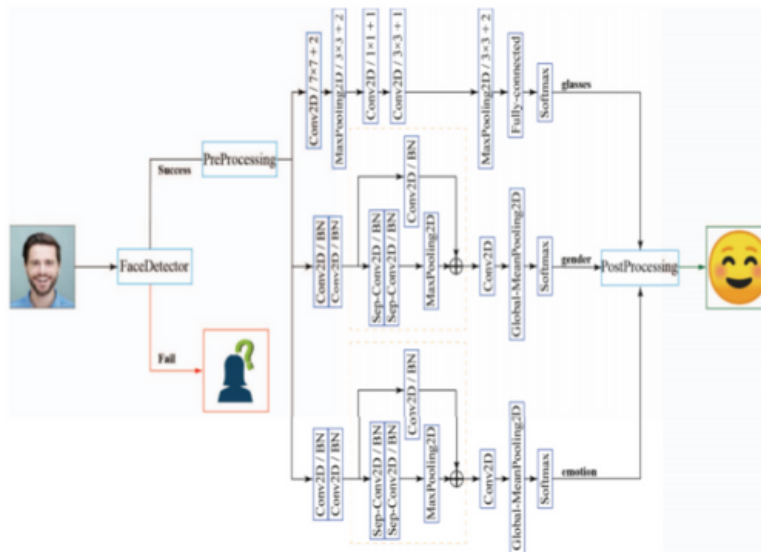


Figure 1.1 : System Workflow Diagram

In recent years, emojis have emerged as an unstoppable force, making significant inroads across various domains, from marketing and virtual communication to sentiment analysis and viewpoint mining. These vibrant symbols allow individuals to convey emotions and facets of their identities in a manner that is perceived as more "authentic." By imbuing visual messages with semantic richness, emojis have not only revolutionized the digital discourse but also found a pivotal role in data retrieval associated with sentiment evaluation and perspective analysis.

The intrinsic value of emojis lies in their ability to bridge the gap between text and emotion. Particularly in informal text communication (ITC), emojis act as conduits of sentiment, facilitating the conveyance of emotions that might otherwise be challenging to articulate through words alone. Whether it's sarcasm, irony, or non-textual humor, emojis offer an avenue to represent these nuanced emotional layers, thereby enriching the conversational experience.

The journey into the world of emojis is an exploration of how innovation can intersect with human emotion and communication. Emojis serve as dynamic tools that enable the authentic expression of emotions, enriching the way we communicate and perceive sentiment in an increasingly interconnected world.

Prof.VIJAYA SAGVEKAR*1, SAGAR CHILIVERY*2, YASHRAJ SONAWANE*3,
SANDEEP PUKALE*4

ENHANCING SAFETY AND COMPLIANCE: FACE MASK DETECTION SYSTEM FOR PUBLIC SPACES

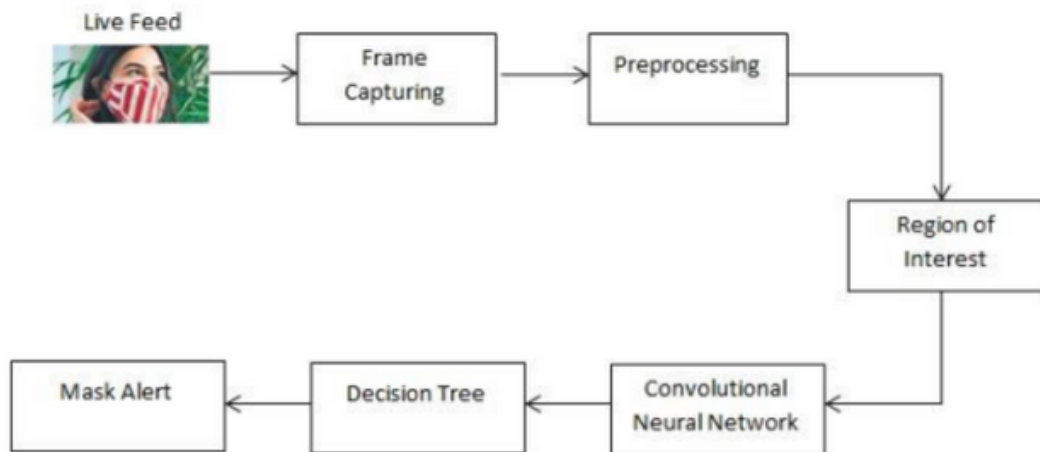


Figure 1.1: System overview of the Face mask detection

The global community is grappling with the dire consequences of the ongoing COVID-19 pandemic, which has inflicted a heavy toll on human lives worldwide. With the virus proving to be highly contagious and infection rates showing relentless growth, the situation has become increasingly critical. A pivotal strategy to combat this crisis is the widespread utilization of face masks as a preventive measure to curb the spread of infection. Governments globally have mandated mask-wearing, urging citizens to adhere to this crucial protocol to mitigate the impact of the pandemic.

Enforcing compliance with mask-wearing presents its own set of challenges, given the vast number of individuals who need to adhere to this preventive practice. Law enforcement agencies are tasked with ensuring that individuals wear masks diligently when venturing outside their homes. The need for efficient and automated techniques to detect mask usage has By automating the detection of face masks, we aim to alleviate the burden on law enforcement agencies and empower individuals to adhere to preventive measures more effectively. In the relentless pursuit of minimizing the pandemic's impact, this research makes a significant stride toward fostering a safer and healthier world for all.

*Dr. SEEMA LADHE*1, KRUTIKA NIKALJE*2, RUPALI MISHRA*3, PRATIK RANE*4*

PERSONALIZED SMART SYSTEM FOR REDUCING DEVICE ADDICTION, ENHANCING WORK ENVIRONMENT, AND CULTIVATING OPTIMAL BODY POSTURE

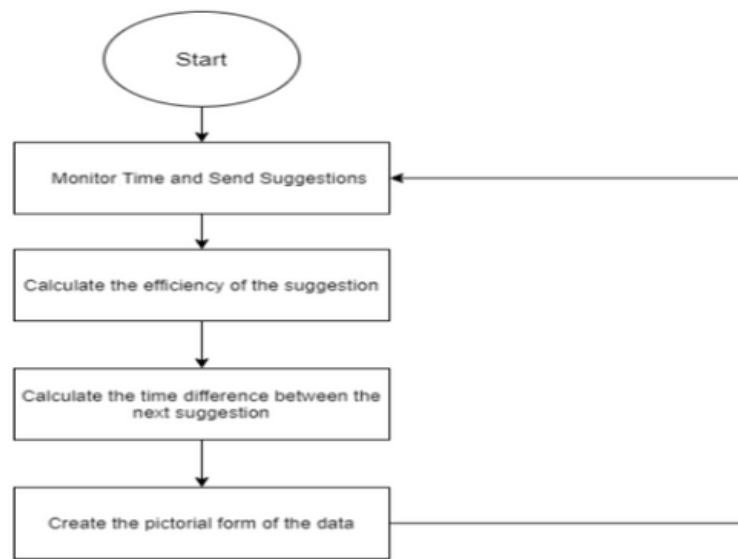


Fig 1.1 Flowchart of Personalized smart system

Devices have seamlessly integrated into our daily lives, with their presence becoming even more pronounced in recent times. As we navigate the digital age, the pervasive use of devices has become an essential aspect of our routines. However, this widespread adoption comes with its own set of challenges that warrant urgent attention. In a world where devices are ubiquitous, addressing the consequences of device addiction, posture negligence, and work-related burnout becomes paramount for the well-being of individuals.

The contemporary landscape is marked by an unprecedented reliance on devices, ranging from computers to mobile devices. People across demographics, whether students or adults, have found themselves engrossed in the digital realm for substantial periods. This surge in device dependency calls for a comprehensive approach to mitigate its potential adverse effects on physical and mental health.

In our digitally-driven era, the proposed project stands as a beacon of hope, addressing the real-world challenges posed by device addiction, posture negligence, and workload burnout. By creating awareness, offering practical solutions, and nurturing healthier digital habits, the project aspires to create a harmonious coexistence between technology and human well-being. Through this endeavor, we strive to enhance the quality of life for all, fostering a balanced and sustainable approach to modern living.

*Prof. Seema Ladhe*1, DHRUV DAMANI*2, RITESH ADSUL*3, NITNI CHOUDHARI*4*

DISEASE PREDICTION USING MACHINE LEARNING AND DJANGO AND ONLINE CONSULTATION

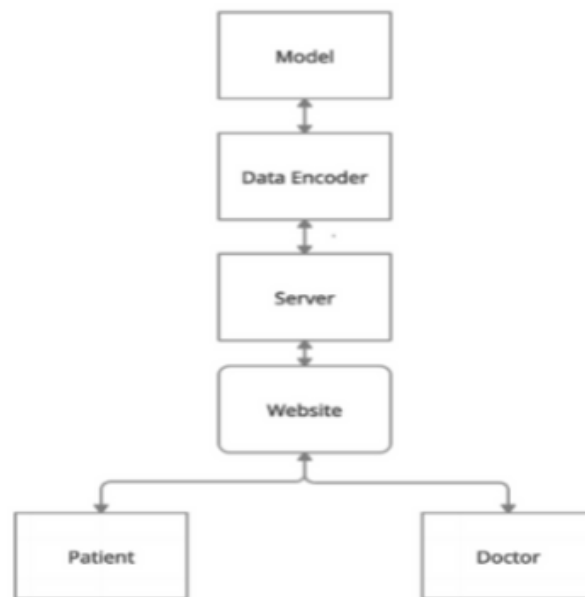


Fig 1. Workflow Diagram

The Health Prediction System you described sounds like a useful and innovative tool that could potentially help individuals get immediate guidance on their health issues when a doctor is not readily available. This system appears to combine elements of online consultation, data mining, and intelligent health care.

Key features and components of the system

User Interface Users can access the system online and input their symptoms and health issues. The system's user interface should be user-friendly and easy to navigate.

Symptom Processing The system processes the symptoms provided by the user. This could involve using data mining techniques to analyze the symptoms and identify potential diseases or illnesses associated with those symptoms.

Data Mining and Disease Prediction The heart of the system is the data mining algorithm. This algorithm takes the user's symptoms as input and uses a database of disease details (including disease names and associated symptoms) to predict the most likely illness. This prediction is based on patterns and correlations found in the data.

Doctor Module The system includes a doctor's module where authorized doctors can log in. They can access patient details, reports, and information about the symptoms and predictions. This module enables doctors to understand what patients have been searching for and what potential diagnoses the system has suggested.

Admin Module Administrators have the ability to manage the database.

*Prof. MEDHA KULKARNI*1, SHUBHAM P. AWHAD*2, YASH R. TAMBE*3, AKASH A. KENY*4*

PROJECT REPORT ON SMART CCTV CAMERA

The Smart CCTV Surveillance System with intrusion detection that you described is a valuable and technologically advanced solution for enhancing safety and security in various settings. This system leverages modern technology to provide real-time monitoring, authentication, and alerts, making it a comprehensive solution for surveillance and object detection. Here's a breakdown of the key features and components:

Multiple USB Cameras The system uses multiple USB cameras strategically placed at different locations to ensure comprehensive coverage of the monitored area.

Live Streaming and Monitoring The cameras provide live streaming and monitoring capabilities, allowing users to keep an eye on their property remotely.

Face Recognition Authentication The system includes face recognition technology as an authentication procedure. This can help in ensuring that only authorized individuals are allowed access to the property.

Intrusion Detection The system's primary purpose is to detect intrusions and unauthorized individuals. When the system identifies an unknown face through face recognition, it triggers an alert.

Alert Mechanisms The system is equipped with alert mechanisms such as sending an email with a snapshot of the unknown face and sending an SMS to the property owner. These alerts provide real-time notifications of potential security breaches.

Security Applications The system's applications extend beyond just personal property. It can be implemented in various scenarios, including home security, business premises, military installations, and other areas where security is paramount.

*Prof. Dr. PRADIP MANE*1, PRIYA KESARKAR*2, PAPIHA LAD*3, PRIYA SONAWANE*4*

A PROJECT REPORT ON MODERNIZED TRAVEL APPLICATION



Fig 1.1 Flow Diagram of Modern Travelling

Mobile devices are more present in our everyday lives than ever before and as such have also become an important factor in modern travel behavior. This will enable an effective way for the customers to book their destination more conveniently. The aim of this study is to identify how users can benefit from an enhanced on the go travel experience and how companies can explore yet widely untapped opportunities by examining current travel patterns of international travelers and challenging industry experts with the findings. System will book the destination and store the data into the database. The System also contains a Machine Learning based chat-bot, Language Translator. User here will register him/herself with all its details and the details will be uploaded into the system, which will be further used by the system during the booking. This lack of intelligence is critical because gaining deeper knowledge in the field of how travelers are using travel-related applications during their trip could provide meaningful insights to fill untapped opportunities for tourism companies and solve problems of travelers having insufficient access to resources enhancing their travel experience on the go. The mobile trend in the tourism industry is massive, as research by the full-service online travel site Expedia (2014) suggests. The online booking agent refers to an overwhelming majority of 76 % of travelers saying that smartphones play a crucial role in today's lives, furthermore implying that mobile devices critically support travelers at every stage in the travel process.

*Prof. VIJAYA SAGVEKAR*1, Poorva Sawant*2, Vidhati Patel*3, Hrithik Roy*4.*

PREDICTING PREMIER LEAGUE MATCH ODDS USING MACHINE LEARNING

Sports Analytics is a leading industry and one of the best real-world applications of Data Science. Many techniques to predict the outcome of professional football matches have traditionally used the number of goals scored by each team as a base measure for evaluating a team's performance and estimating future results. Although, the number of goals scored during a match possesses large inconsistencies in many games between a team's performance and number of goals scored or conceded. The main objective of this project is to explore different Machine Learning techniques to predict the odds of football team, using the last year standings and the number of goals scored by each team until half-time. We will traverse various model design hypothesis and assess our models performance against standard techniques. model predicting the outcome of future matches, as well as a regression model predicting the score of future games. Our models' performance compare favourably to existing traditional techniques and achieve a similar accuracy to bookmakers' models. Football is very famous sport in the world. The Governing body of football, the International Federation of Association Football (FIFA), estimated that at the turn of the 21st century there were approximately 300 million football players and over 1.5 billion people interested in popularity of this game created huge number of people's association. Hence, estimation of match result in advance is very attractive to the experts and re-searchers. But it is very difficult to guess the result of a football by experts or past statistics. There are many factors who can influence the match outcome like, skills, player combination, key players forms, teamwork, home advantage and many others. Prediction is much harder more when match stats are influenced by extra time or substitute players or injuries. Football associated sports data is now publicly available and grown curiosity in innovative intelligent system to speculate the outcomes of matches. In the last two decades, researchers proposed several advanced techniques to predict outcome using previous and available data. Most of the past research devise the prediction problem as a classification problem. The classifier forecast the result with one class among win, loss or draw class

*Prof. Ashwini Phalke*1, Anish Yekhande*2, Yadav Deepak Kumar*3, Kanojiya Sanjay*4*

A PROJECT REPORT ON PLANT HEALTH MONITORING SYSTEM

Agriculture is an essential thing for survival of the human and the farmers who do agriculture spend so much of time in plough the field and irrigating the field etc. The proposed system is a boon to farmers which combines the Robotics with agriculture and is capable of moving around the field like a farmer and plough the field and sow the seed in a pre-determined bro and irrigate the field along the rows anonymously in addition to this obstacle detection and clearance are also done all these operations are controlled by a Wi-Fi module. Classification of plant diseases in early stages using image processing and analyzing environmental sensing data not only helps farmers to get healthy plants but also maximize the production. To monitor and classify plant diseases IoT is essential to send images and give feedback on it. Plant Health monitoring is one of the most important tasks in any agriculture-based environment. India is one of the nations where agriculture and allied sectors are major employment sources. Thus, an efficient monitoring system is required for continuous and long-term plant health monitoring. One way for increasing yields while reducing environmental effect is to monitor plant health. Water level, soil quality, and the presence of pathogens and pests may all be monitored in real time using low-cost in-field technologies. For best plant growth, expensive agrichemicals and water can be used in a targeted manner. Pathogen detection would enable for early intervention to stop the spread of disease. Farmers use a variety of agricultural strategies and technology to increase yields, including crop rotation to promote soil health, the use of genetically modified seeds, and monitoring plants for infections and pests by growing non-native plants, sometimes known as sentinel plants. A variety of diagnostic tools are also used to detect disease. Current laboratory-based plant diagnostic approaches, on the other hand, are insufficient. Several point-of-use technologies, such as lateral flow devices or portable devices for in-field application, have been created. However, these devices necessitate the collection and processing of plant tissue, which is inconvenient for continuous monitoring. Plant nanotechnology is a new field that has emerged in the last decade and has the potential to improve agricultural productivity.

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