MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL
NH-12 (Old NH-34), Simhat, Haringhata, Nadia -741249

Department of Information Technology

List of Projects Completed By B.Tech Students

Session: 2018-2019

Comparison Of Supervised Machine Learning Algorithms To Predict Human Body Physical State Based On Accelerometer Data

Guided By: Dr. Suparna Biswas

Abstract: *Science is the best reliable source for predicting and relaying on the outcomes. In Today's fast changing world, Everything needs to be fast so that, we can synchronize with world. Now a days more things to be done in short time. In Medical Domain, we are developing so many system, which are going to predict many disease from its driving parameters in our physical body. WBLAN (wireless body local area network) is a such a one of these system, which is intended to predict human physical state such as sitting, standing, walking, stairs up and stairs down state of body on the basis of acceleration of their body at that moment. We have used accelerometer sensors which are embedded in almost every cellphones to know acceleration of body. And Today everyone has cellphone. we have compared many machine learning supervised algorithms on the basis of their accuracy to make our predictor software. This predictor software more precisely trained model has been used to predict the outcomes. we have developed our whole end to end system in three frameworks. First one is server where our predictor software is situated to make calculations and predict state. Second one is our client device from where we will be sending accelerometer data to server more precisely to our trained model. Third one is Connection between them, we have used tcp protocol over internet for establishment of connection between server and client. one more reason for using TCP protocol is for ensuring security, confidentiality, authenticity of user's data. For better understanding of our whole underlying frameworks of our system, we have provided many analyzed data on the basis of our work as well as simulations results.*

Members:

1. Abhishek Kumar Verma
2. Ankit Srivastava
3. Durgesh Singh

RFID Based Attendance Management System

Guided By: Dr. Pradyut Sarkar

Abstract:*Attendance Management System is a software developed for daily student attendance in schools and colleges. It facilitates access to the attendance information of a particular student in a particular class. The information is sorted by the operators, which will be provided by the teacher for a particular class. This system will also help in evaluating the attendance eligibility criteria of a student.*

Members:

1. Ankita Maity
2. Rajarshi Mondal

3. Arpan Deb Das

Kolkata Rail Route

Guided By: Mr. Subhanjan Sarkar

Abstract:*Kolkata Rail Route application is a software being developed for making it easier for people to commute via local trains in the Howrah and Sealdah railway routes. The application is offline, the user will just need to use the interface to choose the start and ending of their journey.*

Members:

1. *Subhrajeet Ganguly (Roll No: 30000116001)*
2. *Animesh Panda (Roll No: 30000115001)*
3. *Anupam Mandi (Roll No: 30000215003)*

Estimation of Important Parameters Influencing Photovoltaic Insolation in a Microclimatic Region

Guided By: Dr. Madhumita Das Sarkar

Abstract:*In this report, we choose a solar radiation (insolation) prediction method based on a regression method to get the important parameters which effect the insolation for installing solar plant. There are several model for predicting the insolation but among them we have chosen linear regression and decision tree regression method for predicting the insolation, as linear regression is an easy method for prediction. We have seen that it gives minimum error between actual and predicted dataset. Historical insolation data, historical and forecasted meteorological variables (temperature, solar zenith angle, relative humidity, wind speed, pressure, dew point) are used as input information. As it is a time series data the proposed method is applied to real and actual dataset of hourly insolation data to demonstrate the forecasting superiority of our proposed approach. Moreover, it has been revealed through extensive simulation studies that among several weather parameters only three parameters are important and which affect the insolation very much. In future we can also predict the insolation depending on the the past weather dataset in a particular region.*

Members:

1. *Bula Nandi (Roll No: 30000215004)*

Digital Consensus Using CLOUD Based Hash Generation

Guided By: Prof.(Dr.) Debashis De

Abstract: *Blockchain technology being a buzzword of the day has attracted the attention of entrepreneurs, governments, banks and many more people across the globe see the advent of the Blockchain technology*

to the Internet. Hash generation is a essential part of blockchain technology. Hash is generated through many cryptographic encryption decryption Algorithm here SHA 256 is one of them which is used in this project.AWS blockchain technology makes easy to create and manage scalable blockchain networks using the popular open source frameworks Hyperledger Fabric and Ethereum. This project gives knowledge about how to generate hash, signature & also about the private/public keys.

Members:

1. *Chandrakant Mani (Roll No:30000215005)*

Brain-Stormer Application Game

Guided By: Mr. Saikat Basu

Abstract: *Cognitive skills or executive functions are a set of mental skills or abilities. These skills are highly interrelated, and the academic success requires proper coordination of these skills with each other. A recent literature review revealed that a number of studies had tried to correlate two or three mental abilities of students at a time with their academic scores. In the present study we are trying to correlate a number of abilities like selective attention, concentration, response inhibition, planning ability, working memory capacity, self-control, vigilance etc. of students with their academic scores. Most of the already existing researches had focused on pre-school or school children while the research on correlation between cognitive skills and academic score in case of college students are completely ignored. Most of the already existing tasks to measure mental abilities are either paper-pencil based or computerized. Today mobile devices are ubiquitous and desktop computers are near about obsolete. Mobile phone is very popular among young adults so we have implemented the task in such a way that testing of students can be done by using mobile phones or tabs. Since it is not easy to motivate young students to engage in our test, we have done a proper gamification of the task to make the tasks more enjoyable to young students. Existing studies never focused on the differences of mental skills between students of different streams, between students of institutions with dissimilar grade, between students of different genders, between students of different academic levels and between students of different age groups at a time. Here we have tried to find the significant differences in cognitive skills among different groups of students by considering above mentioned factors at a single study.*

Members:

1. *Tinu Dev Kerketta (Roll No:30000115026)*
2. *Deepak Kumar Thakur (Roll No: 30000215006)*
3. *Somiparno Chattopadhay (Roll No: 30000215020)*

An IOT Based Smart Irrigation System Using Arduino and Android 5.1.1

Guided By: Dr Koushik Majumder

Abstract:*With the advancement of automation technology, life is getting simpler and easier in all aspects. In today's world Automatic systems are being preferred over manual system. Automatic system is a growing system of everyday object from industrial machine to consumer goods that can complete tasks while you are busy with other activities.*

MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL
NH-12 (Old NH-34), Simhat, Haringhata, Nadia -741249

Department of Information Technology

India's population has reached beyond 1.2 billion and the population rate is increasing day by day then after 25-30 years there will be serious problem of food, so the development of agriculture is necessary. Today, the farmers are suffering from the lack of rains and scarcity of water. The main objective of this paper is to provide an automatic irrigation system thereby saving time, money & power of the farmer. The traditional farmland irrigation techniques require manual intervention. With the automated technology of irrigation the human intervention can be minimized. Whenever there is a change in temperature and humidity of the surroundings these sensors senses the change in temperature and humidity and gives an interrupt signal to the microcontroller.

Members:

1. *Kaustav Ghosh (Roll No : 30000215008)*
2. *Mani Shankar Prasad (Roll No : 30000215010)*

Alumni Management System

Guided By: Dr. Amiya Karmakar

Abstract:*An alumni website is an association of graduates or, more broadly, of former students (alumni). In the United Kingdom and the United States, alumni of universities, colleges, schools(especially independent schools), fraternities, and sororities often form groups with alumni from the same organization. These associations often organize social events, publish newsletters or magazines, and raise funds for the organization. Many provide a variety of benefits and services that help alumni maintain connections to their educational institution and fellow graduates. In the US, most associations do not require its members to be an alumnus of a university to enjoy membership and privileges. Additionally, such groups often support new alumni, and provide a forum to form new friendships and business relationships with people of similar background. Alumni associations are mainly organized around universities or departments of universities, but may also be organized among students that studied in a certain country. In the past, they were often considered to be the university's or school's old boy society (or old boys network). Today, alumni associations involve graduates of all age groups and demographics. Alumni associations are often organized into chapters by city, region, or country.*

Members:

1. *Kundan Saha (Roll No: 30000216002)*
2. *Madhushree Mandal (Roll No: 30000215009)*
3. *Priya Kumari (Roll No: 30000115017)*

Break Bill

Guided By: Ms. Sayantani Saha

Abstract:*Break Bill is the division of a bill for service into two or more parts. Bills may be split to divide work between friends, roommates, colleagues and others.*
Vacations, lunches and movie nights with friends are all fun, until you have to worry about who owes how much! How many times have you forgotten that your friend owes you for last week's lunch or that month's

rent? And what happens when your friends tell you that if you pay this time, the next expense is on them. Is the amount split evenly or does each one owe you a different amount? You've probably made mental notes and it has fluttered away in the summer breeze! Sometimes even written notes are not of much help, there's too much to calculate, and you lose track of your money. When in doubt ditch the calculator, embrace the app! Actually, just embrace the app! Money View brings to you the easiest way to keep track of your shared expenses. The new feature 'Split Expenses', lets you tag your friends on a particular spend, so you know exactly how much they owe you. The app incorporates your phonebook contacts; so when you tag friends, it is against their numbers. Once tagged, the app will send an SMS to your friends about how much they owe you, and for what. So you don't need to make excel sheet records, post-it notes, gentle reminders or send pay-up-or-I-take-away-your-bike messages! Go Dutch with Split Groups. The feature allows you to:

->Keep track of all the shared expenses
->Tag your friends against the expense
->Divide the amount equally or assign particular amounts to friends
->Send notification to friends sharing the expense, stating the expense the event
->Allows you to update as "settled" when friends pay up
->Let the app work the math and magic to keep your finances in order.

Split Groups is an awesome feature that will help settle shared expenses, so you can just concentrate on the fun.

Members:

1. *Moumita Murmu*

Apparel Recommendation Engine

Guided By: Prof. Santanu Chatterjee

Abstract:*A good software is something that has been made with clear goal in mind, and by clear goal I mean a well specified Software Requirement Specification, well documented Technology Stack and a proper Business Model for marketing of the product.*
We have created a system and method for recommending clothing or apparel to a user. Activity of a user is detected in order to identify a set of items that are of interest to the user. One or more recommendation parameters may be determined for the used based at least in part on the individual items of clothing/apparel that are of interest to the user. Clothing/apparel content is selected for display to the user based on the recommendation parameters.
We have created an Apparel Recommendation Engine using Title, Brand, Colour and type of the product as a feature to convert the text into vector we will be using NLP Technique like BOW and TF-IDF then we will merge all the matrix and for similarity we will use Eucledian distance.
This system is mainly targeted for online customers to make their decision easy by recommending the similar items that the user likes. E-commerce website can also use our product to increase their sales by appealing customers with more products.

Members:

1. *Mukul Kumar (Roll No.: 30000215012)*
2. *Jay Agrawal (Roll No.: 30000115010)*
3. *Neelanjan Halder (Roll No.: 30000115014)*

Weather Prediction of Kalyani Region With Machine Learning Models

Guided By: Dr. Somdatta Chakravortty

Abstract:*This study develops an objective weather pattern assessment using Machine learning models. In this project we have used, Markov chain analysis using daily weather data for July and august 2005, for Kalyani in order to predict weather for July and august 2006 in Kalyani, We have also used machine learning algorithm Naive Bayes and Linear Regression to predict weather and compare the result to understand the best model.*
In case of Markov Chain Analysis, Transition matrices were computed for each month and using the conditional probability of hot rainy or hot dry on a particular day given that it rained or did not rain on the previous day. The steady state transition matrices and the steady state probability vectors were also computed for each month. It was found that, the hot rainy or hot dry season pattern observed using the monthly steady state rainfall vectors tended to reflect the monthly time series trajectory. Overall, the probability of hot rainy or hot dry on any day was average to high in Kalyani region. In particular, for Kalyani, the rainy season was observed to be in the months of July and August.
Various statistical methods are used to process operational Numerical Weather Prediction. In this paper we present an application of Bayesian in meteorology from a machine learning point of view. Due to the characteristic of attribute of continuous value, data discretization are done during the data preprocessing, then the naïve Bayesian are used to forecast the weather.

Members:

1. *Neha Parveen (Roll No: 30000215013)*
2. *Rinkesh Gupta (Roll No: 30000215017)*
3. *Mitali Paul (Roll No: 30000216001)*

AppIDE Compile and debug on Android Smartphone

Guided By: Dr. Sujoy Mistry

Abstract:*A good software is something that has been made with clear goal in mind, and by clear goal I mean a well specified Software Requirement Specification, well documented Technology Stack and a proper Business Model for marketing of the product.*
AppIDE is an Android app based Integrated Development Environment with a flexible text editor and multiple language support and deployed on a Linux system. On layman's term user writes the program in the app in the space provided by the text editor after selecting the language followed by the submission. And our product will build the program and return back the output if success, error message otherwise. This app is mainly targeted for Students (Grad or High-school), self-made Programmers to make their learning process easy and guided. Developers can also use our product to write and test small modules before integrating to their large applications.
AppIDE implements auto indentation, cloud storage and debugging features which are some of the important features required in any IDE. We have leveraged many features already provided by Android to

implement these thus making our app much more efficient and smaller in size. The app size is approximately 1.8MB. When installed it expands to approximately 5.0MB.

Members:

1. *Prakash Kumar (Roll no: 30000215014)*
2. *Sudipto Mondal (Roll no: 30000115024)*

Fake News Detection in Traditional and Social Media Platform

Guided By: Hari Shankaran

Abstract:*The invention of internet and improvement upon communication technology in past decade has brought connectivity to reach of palm. Any form of data, structured or unstructured, can travel through guided/unguided medium to reach destinations in a fraction of seconds. This helped us to prosper data driven social welfare problems in agriculture, industrial, education and health-care systems. On of the biggest implication of overwhelming connectivity is the reformation of news and broadcasting medium. From one direction of flow of information as institution to consumers, the news channels have adapted to modern two way information transfer, i.e., from general public and organization to news channels and then to reach broader consumers. This helped to grow more on-demand, exclusive and consumer-specific reach of information, but also have included more risks into the authentication of such news sources. For own benefits, political institutions, corporations and even general public often misdirects the consumers by spreading so called fake news. In today's world, anyone with basic knowledge of web technology can build a website promising to deliver information which often are wrong, misleading or factually incorrect. The problem of fake news have so been deeply rooted in our society, that we cannot escape from it in our everyday life. In this thesis, it has been tried to comprehend some of the basic nature of such information and their sources to help humans classify between a real and a fake news story.*

Members:

1. *Progyan Bhattacharya (Roll No: 30000215015)*

Study of Lung Cancer Detection

Guided By:Professor Mihir Sing

Abstract:In this paper, I have designed a machine learning algorithm using Convolutional Neural Network(CNN) to detect whether the patient is having cancerous nodule in lungs or not,using their respective Computed Tomography(C.T.) Scans stored in the Digital Imaging and Communications in Medicine(DICOM) format.The dataset is pretty large about ~140GB just in initial training data,which consists of 1500 patients CT scans to predict the same and there are also 100 patients CT scans which already consists of the information that those patients have cancers or not which I have used to train the CNN. The algorithm is implemented in Python, using the following libraries:

Matplotlib – For data visualization
PyDICOM – For reading DICOM files
TensorFlow – For constructing the CNN

Numpy – For array processing
Pandas – For editing and reading CSV files

Members:

1. *Rajarshi Basu (Roll No:30000215016)*
2. *Ritesh Kanjilal (Roll No:30000215018)*
3. *Ankur Singh (Roll No:30000115003)*

Image Encryption Technique Using Chaotic Function

Guided By: Dr. Debasis Giri

Abstract: *Security of an image has become an essential part in communication and multimedia world. Cryptographic techniques are used to accomplish a certain level of security, integrity and confidentiality to prevent unauthorized access. In this project, image encryption and decryption technique is proposed, based on chaotic system.*

The chaotic image encryption can be developed by using properties of chaos including deterministic dynamics, unpredictable behavior and non-linear transform.

This concept leads to techniques that can simultaneously provide security functions and an overall visual check, which might be suitable in some applications. Digital images are widely used in various applications, that include military, legal and medical systems and these applications need to control access to images and provide the means to verify integrity of images.

Members:

1. *Bhaskar Kumar*
2. *Saikat Saha*
3. *Sanchari Dey*

Android Game: Racing Manager

Guided By: Ms. Sayantani Saha

Abstract: *Mobile application development is one of the recent trends in computing Industry.*
Among several existing platforms for mobile, Android is one of the largest platforms in the world that run in several smart phones and tablets from various manufacturers like Google, Samsung, HTC etc. The project we have developed is a game for Android platform.
This report contains the design and architecture of android, about SDK, version of android and implementation and details (feature, different states of the game, how to play, and strategize your gameplay) about the game which we have developed. Design and develop useful android applications with user interfaces by using, extending, and creating own layouts and views. The project has been developed in BASIC Programming Language. We have used the Android software development applications on the Android platform. The most important of these are the android emulator Big nox and Blue stacks.

MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL
NH-12 (Old NH-34), Simhat, Haringhata, Nadia -741249

Department of Information Technology

Members:

1. *Naren Das (Roll No: 30000115013)*
2. *Subhojeet Das (Roll No: 30000215021)*