Virtual Assistant to interact with your House-Hold Appliances (voice based commands).[like Amazon echo]

Abstract:

In todays world things are getting more Advanced and smarter with the help of AI and NLP (Natural language Processing). In this project we develop a Virtual Assistant, which takes control over our household electrical appliances on vocal commands. These types of VA's are useful for people of every age group, but more helpful for Childrens, aged persons and busy professionals. It prevents childrens from getting electric shocks as they dont have any need to approach the electrical circuit. We use Iot as a mode of communication between user and the Applience. The user activates the VA through activating voice command and followed by the actions to be done. NLP (Natural Language Processing) is performed on the vocal command and is converted to machine readable form, which is in turn processed by the processor and executed with the help of IoT devices connected to the appliances.

Keywords: IoT, NLP, Speech recognition, Raspberry pi, Arduino, Virtual Assistant, Segmentation and Tokenization, Text cleaning, Lemmatization and Stemming.

COST: **(9k to 10k) according to the component selection**

Health care perspective using DataAnalytics

Abstract:

Data analytics is a process of analyzing and identifying different patterns, relations, and trends within a large volume of data. In this project, we apply data analytics techniques and machine learning algorithms to find the factors that lead to blood pressure,by using the real-time data containing records of 1540 patients, where exploratory data analysis is conducted for visualization and trend prediction. The algorithm used are logistic regression and machine learning models, which involve univariate analysis(every single field are analyzed), bivariate analysis,correlation heatmap to check what numerical values are correlated and to what extent and feature selection using Kbest method and to verify the correctness of prediction we use chi square test and association rule.The main goal of this project is to analyze the factors that impacts the health of the society.

Keywords: Data Analytics, Machine Learning Algorithms,Predictive analysis, chi square test, association rule
COST: 8k , (9K with documents)

Facial based Attendance System for Students/employees

Abstract:

In this Virtual Era Institute's and Corporate's are moving towards e-learning and e-training facilities where attendance plays a vital role. Having time constraints as a limit, a lot of time is wasted in taking attendance. In this project we have come with an idea of an automated attendance system and head-count during any live session or at the entrance. There will be no manual work of taking attendance after the implementation of this system. As soon as the users enter the session the attendance will be marked with the time stamp. The head count will be taken every 1 hour and attendance will be verified on change of headcount. The data will be stored in a fire-base and can be used for reference. Deep learning is used to classify and detect facial image, Flask is used to convert the datasets to readable form or store as api.

Keywords: Deep learning, Facial Datasets, Multi-task Cascade Convolutional Neural Network, Haar cascade, Fire-base, Flask
COST: **(8k to 9k) can be customised**

Health monitoring system using Iot (Ecg, pulse...)

Abstract:

Many lose their lives due to improper treatment or diagnosis. Many Hospitals don't have sufficient duty nurses and doctors who can take care of patients who are under diagnosys. In this project we create a virtual connectivity between patients who are under diagnosis and the doctor who is incharge of. Patients pulse, Ecg scan and other readings are recorded and propagated using IoT devices, these values can be monitored by the duty doctor from his / her remote place. In case of any emergency recorded by the system, the duty doctor will be intimated through sms so that he/ she could monitor and provide instructions to the nurse incharge. The process flow is as follows. Sensor values recorded will be transmitted to the database using Iot device, that in turn is retrieved using JDBC and the result is propagated as a web page in the form of graph or numbers. As a result the patient gets treated on time saving his life.

Keywords: JDBC, Node MCU, Arduino, IoT devices, Fire-Base, Bootstrap.

COST: *(8k to 9K) can be customised*

Voice Activated human companion with facial recognition

Abstract:

In this Fast-paced world people don't have time to spend on their day to day activities like reading news and articles, setting reminders, checking weather etc. Due to their busy schedule they feel lonely most of the time. In this project we build a Voice activated companion who greets you with your name, reads news articles and keeps track of your daily tasks. NLP (Natural Language Processing) is performed on the vocal command and is converted to machine readable form, which is used to activate the companion and process the result. Deep learning algorithms are performed on facial datasets to identify the owner and greet him when he is Home from work. This may give the user a companion-like feel which he was missing for days.

Keywords:Deep learning, Facial Datasets, Multi-task Cascade Convolutional Neural Network, IoT, NLP, Speech recognition, Raspberry pi, Arduino.

COST: *(9k to 10k) according to the component selection*

Vocal and Gesture based communication for disabled persons (image-processing ,iot)

Abstract:

Disabled persons suffer a lot especially during a communication between disabled person and a normal person. It is really difficult for us to understand what they are coming to say exactly and vice versa in case of def and dumb persons. To avoid this complexity in understanding each other we develop a Vocal and Gesture based Companion for disabled persons. This product is used for two way communication. For normal person to understand we use Deep learning to analise the sign language shown by the def or dumb person and the the analised result is converted to text formatt and produced as vocal output. In case of disabled person, a normal user speaks the content like (ONE, ALL THE BEST, etc..) and this will get converted to sign language using NLP. So as a result this device acts as an interface between the two parties. The output will be in Vocal and Pictorial representation.

Keywords: *Deep learning, IoT, NLP, Speech recognition, Raspberry pi, Arduino, Segmentation and Tokenization, Text cleaning, Lemmatization and Stemming, Image classification.*

COST: *(9k to 10k) according to the component selection*

Human Companion to interact with user based on Emotion.

Abstract:

Human emotion plays an important role in the interpersonal relationship. Personal Assistants like window's Cortana, Apple's Siri and google assistant have similar features but lack in detecting user emotions. In this project we develop an personal assistant with the capability of assisting and complementing users based on their emotion. Algorithms and models like Long Short-Term Memory (LSTM), Convolutional Neural Networks (CNN) and Hidden Markov model are used for training and performance evaluation. The assistant is automated with the capability of object tracking and voice response based on facial expression. The potential application of this personal assistant includes providing assistant to user, protecting the device from theft, complementing and encouraging the user based on their mood and facial expression. The effectiveness of voice and image processed by the assistant is measured through several defeats and experiments. The main goal of this project is to produce an enhanced performance level with greater accuracy.

Keywords: *Deep learning, Emotion detection, Flask, API, NLP, Speech recognition, Segmentation and Tokenization, Text cleaning, Lemmatization and Stemming, Image classification, Python.*

COST: *(10k) with documentation*

A Web based Flask Application to Predict Colorectal Cancer using Convolutional Neural Networks

Abstract:

Colorectal Cancer *(CRC),* also known as bowel cancer or rectal cancer is the development of cancer in the part's of the large intestine (colon or rectum). The examination of sampled whole tissues under the microscope is more important for the early diagnosis of colorectal cancer. The traditional visual assessment is time consuming and highly unreliable because of the subjectivity of the evaluation. On the other hand automated analysis is extremely challenging due to the variability of the architectural and colouring characteristics of the histological images. In this work we propose a web based flask Application to predict Colorectal Cancer using deep learning technique based on Convolutional Neural Networks (CNN) to differentiate tumor tissue from healthy tissues. 4550 image datas of seven different tissue types *(TUMOR, STROMA, COMPLEX, LYMPHO, DEBRIS, MUCOSA, ADIPOSE)* in total are collected and analyzed using pandas and sklearn. A CNN model is trained after preprocessing and cleaning of data, the accuracy of the model is calculated and analysed using Confusion Matrix. Performance evaluation of the model is carried out with the encouraging results of the initial experiments. The model is deployed to a production environment using Flask as a Web Application. Though the information may not replace the advice of a doctor, the Application may serve as an intermediate between traditional and automated analysis of tissue for fast prediction by Doctors.

Keywords: *Deep learning, Colorectal Cancer, Flask, Pattern Recognition,* **Convolutional Neural Networks (CNN),** *Data analytics, Web Application, Pandas, Sklearn Python.*

COST: *(7.5k) with documentation*