PROJECT ABSTRACT

Group G
Anjima Sadasivan:14
Geoff George:23
Parvathi Harikumar:47
Vishnu maya V:59

1.Vending Machine

- Aim and Objective: The aim of automated vending machines is to provide the users with a diverse range of products.Our aim is to design and implement a vending machine which provides face masks which are very important in the current scenario.Any one who forgets to take the mask , loses the mask can make use of this vending machine.

- Brief Description: Vending machine is a mechatronics device which is used to provide commodities to people without human interaction. Vending machines have been commonly used to sell snacks in many places. Here we propose the design of a mask vending machine. Currently, we are in a pandemic situation and face masks have been very common to our everyday lives. The proposed vending machine delivers a face mask by giving the desired amount of money as input. This project is an interdisciplinary of electronics and mechanics.

- Hardware Components used:
1. Arduino
2. IR proximity sensor
3. DC-DC LM2596 Step Down
4. Nema 17(Horizontal and Vertical)
5. Mechanical Components(screws,wooden boards)

2.Stock market prediction

- Aim and objective:To make a stock market prediction system based on market sentiment.

- Brief description: It is challenging to design profitable and practical trading strategies as stock price movement is highly volatile and market is highly influenced by chaotic data across sources like news and social media.Existing NLP approaches largely treat stock prediction as a classification or regression problem and are not optimized for profitable investment decisions.This project takes data such as financial news at a company and predicts its stock trend with news sentiment classification .Assuming news articles have an impact on the stock market ,this is an attempt to visualize the relation between news and stock trend.

- Technologies used:
1. Machine Learning
2. Natural Language Processing
3. Neural Networks
4. Data Visualization

3.RFID based automatic toll collection system

- Aim and objective: To make an automatic vehicle toll collection system using Arduino and RFID .

- Brief description: This project focuses on an electronic toll collection (ETC) system using Radio frequency identification. (RFID) technology. The RFID system uses tags, through which information embedded on the tags are read by RFID readers, The proposed system eliminates the need for motorists and toll authorities to manually perform ticket payments and toll fee collections, respectively. Thus it is a more efficient toll collection by reducing traffic and eliminating possible human errors. This system allows the vehicle drivers to pass the toll tax booths without stopping at the toll booths. The toll amount is deducted from the RFID card. This RFID card is rechargeable and account is stored on the records. This system will have two benefits. First benefit is that movement of traffic will be much faster as the user will not wait to give the money because, driver has to just show the RFID card in-front of the card reader. Second benefit is that the driver doesn't have to carry the money each time. He will just recharge the RFID card by a certain amount and will use this card each time he travels.

- Hardware and software identified:
1. Arduino nano
2. RFID reader
3. RFID tag
4. Servo motor
5. LCD display
6. Keypad
7. IR obstacle sensor
8. Buzzer
9. Potentiometer
10. Veroboard
11. Resistor
12. Jumper wire

4. Robotic weed cutter

- Aim and objective: To design and implement a robot which identifies weed and crop in an agricultural plot and removes the weed.

- Brief Description:

Over the past century, weed control has been a long-standing issue in the field of agriculture. The uniform application of herbicides has demonstrated its effectiveness at weed removal, however, also introducing environmental pollution, human health, and herbicide resistance concerns. Due to its adverse effects, governments and farmers seek to reduce the herbicide input. Robots have been very helpful for replacing human presence for tedious jobs. A robot which helps to remove weeds by identifying them in between the crops is the project we propose. Image classification techniques help us to train models to identify weeds and by the virtue of mechanical design of the robot weeds can be cut down.

- Hardware and software components identified
    1. Camera
    2. Raspberry Pi
    3. Actuators
    4. Weed cutter
    5. DC Motor
    6. Relay
    7. Solar panel