SMART ROAD DIVIDER (Data mining framework for real-time process/automation data) IoT Hackathon

Executive Summary

- In order to reduce the traffic congestion we propose our idea of controlling the road divider for an extra lane as per need with the help of IOT.
- As per the traffic congestion observed in our daily life through the real-time cameras.
- We gather the data collected from the cameras and send them to cloud for analyzing the traffic.
- In analysis part, the data will be analyzed using raspberry pi through image processing.
- After analyzing, the necessary action is performed whether to push/pop the divider.



Problem being solved

- The problem with Static Road Dividers is that the number of lanes on either side of the road is fixed.
- Since the resources are limited and population as well as number of cars per family is increasing, there is significant increase in number of cars on roads.
- This calls for better utilization of existing resources like number of lanes available.



Technology Stack

HARDWARE REQUIRMENT: -

- RASPBERRY PI 3 MICRO CONTROLLER
- 32-GB SD CARD
- T COBBLER
- SERVO MOTORS
- PI CAMERA

SOFTWARE REQUIREMENTS: -

- PYTHON
- RASPBIAN OPERATING SYSTEM
- OPEN CV(IMAGE / OBJECT DETECTION)
- IBM WATSON (CLOUD)

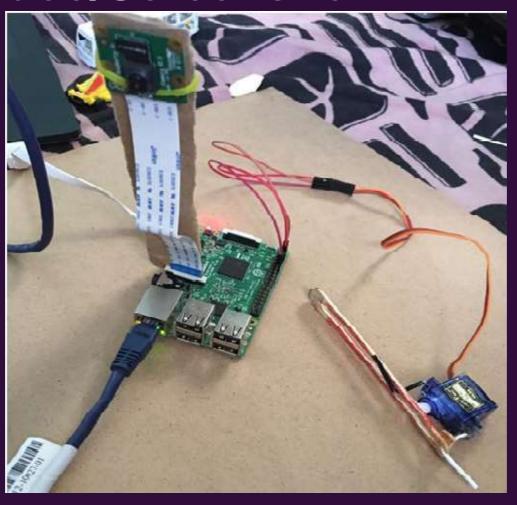


Demo Video/Screenshot





Demo Video/Screenshot





Challenges faced

- Problems faced during connecting raspberry pi display to laptop.
- Problems faced during image /object detection.
- Problems faced with programming errors.
- Problems faced during making perfect circuit to make dividers push/pop.



Why This Approach

- In this approach, we will eliminate the dependency on manual intervention and manual traffic coordination, so that we can have a smarter traffic all over the city.
- An Automated movable road divider can provide a solution to the above-mentioned problem effectively. This is possible through IOT.
- This project is to decrease the time of journey in the peak hours and to avoid traffic congestions and to provide a better and a smarter solution for traffic problems.
- Enables ability to analyze and predict traffic faster and more accurately than ever before.
- Provides new insight into mechanisms that effect a complex traffic system.
- Smarter, more efficient, and More Environmentally Friendly Traffic.



THANK YOU

