

TEQIP II funded UG projects-2013 -2017 batch

Segmented Studies on Urban Driving Cycle and Traffic Patterns

By

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Summary: Vehicular transport as a concept is an extremely widespread acceptance among people. This means that there is an extremely diverse transport sector on the globe. The way vehicles are manufactured, deployed and used is also quite varied which has a direct implication on the fuel efficiency, emissions and even the driving style of people. The focus has been on developing a realistic drive cycle for India. The drive cycle data would enable the improvisation of the current light vehicle emissions test procedure and maximize fuel efficiency to decrease the negative impact on the environment. The data would be acquired through the vehicle OBD port by using Commercially-Off-The-Shelf (COTS) hardware. An automotive grade custom prototype would then be designed which would house all the necessary modules for data capture. The intention is to make the prototype truly open source as it will contain easy-to-obtain and cheaper alternatives to currently available hardware while still being reasonable robust. The data gathering and storage would then be complemented with an IoT solution.

Paper submitted:

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Drone Based Image Processing through Feature Extraction

By

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**Guide: Dr C Gururaj, Assistant Professor,
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Amount Received: Rs 17,196/-

The method proposed in the project is to build a drone with camera to capture images of crops, soils, flooded areas and those images are processed to get required results. Building of Drone is the first part. The Bag of Words algorithm is then applied on the test image and specific features are extracted. These features are matched against the features of images in the predefined data set. The data set has classified categories of different types of crop images. After matching result is given as the name of the category to which the test image belongs.

Paper published:

Ashish Manohar, Dulam Sneha, Kunal Sakuja, Tanya R Dwivedi, **C Gururaj**, “ Drone Based Image Processing through Feature Extraction”, IEEE International conference on Recent Trends in Electronics , Information, Communication Technology”, May 2017, Bangalore

SMART METRO – RAIL SYSTEM

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Amount Received: Rs 4096/-

Summary: This project proposes a semi – autonomous system to over comes various challenges faces in the rail industry, while also reducing the human error window.

The main aim is build a prototype of a smart metro rail system that could be implemented in many metropolitan areas so that there is least amount of manual involvement during transportation.

The main features that will be incorporated in the project prototype are listed below:

- Automatic Stop-Start Operation without human intervention.
- Collision detection for short range obstacles.
- Operation of doors with preference to passenger safety.
- Automated signaling to the control station in case of any emergency.
- Regular intimation to the travelers via SMS Service about status of the train.

This model was implemented using a transmitter – receiver model. Where only certain commands are given from the transmitter while the receiver mounted on the movable prototype takes care of the functioning.

This model is best suited to the rail setup within city limits. This model is best served and utilized by the people in public amusement parks, inter-connection Hub, etc. Moreover this type of rail system is more feasible to a small or medium area with a decent population density and hence will reduce costs on both, the administrative officials and the customers. This will also reduce air pollution and traffic jams to a huge extent.

Paper published:

Srivas M C, Suman S Hosmane, Kumarnarayan Bhat, Dilip Kumar M S, **Shreenivas B** " Smart Metro - Rail System ", International Journal of Advanced Engineering, Management and Science (IJAEMS), Vol-3, Issue-5, May- 2017, ISSN: 2454-1311, DOI: <https://dx.doi.org/10.24001/ijaems.3.5.32>.