

Design and Development of Driver's driving Pattern Analysis for Automatic Licence Issuing System

S. Deepak¹, R.V. Dhinesh², S. Dinesh³, S. Divakaran⁴, Dr. S. Sumathi⁵

U.G. Student, Department of ECE, Adhiyamaan College of Engineering, Hosur, TN, India^{1,2,3,4}

Head of Department, ECE, Adhiyamaan College of Engineering, Hosur, TN, India⁵

ABSTRACT: This project focuses on automatic riding pattern recognition based on a machine-learning approach. The proposed methodology considers the multivariate aspect of the data and the mechanical correlation between the different parameters measured on a two wheeler. Real experiments are conducted by different subjects driving two wheeler instrumented with accelerometers, gyroscopes, and vehicle sensors. The riding pattern recognition problem is then formulated as a classification problem to identify the class of the riding pattern from the measurements provided by 3-D accelerometer/gyroscope sensors mounted on the motor cycle. This project also focuses on implementing Co emission monitoring and reporting system in the Transport vehicle.

KEYWORDS: MEMS Sensor, Force Grip Sensor, Analog to Digital Converter. Footrest Piezo Sensor

I. INTRODUCTION

In India as per Motor Vehicle Act 1988, No person shall drive(Ride) a motor vehicle in any public place unless he holds a valid driving (Riding) license issued to him to drive a vehicle of authorized category by the by individual state via their Regional Transport Authorities or Offices.

Driver behavior and driver errors are major causes of vehicular accidents. Therefore, understanding and modeling driver behavior has attracted much attention from researchers.

The proposed driving behaviour models have different purposes; some of them have tried to assess the vehicle dynamics or to monitor the driver status, whereas others have tried to better understand the underlying dynamics in driver behaviour.

The need to control the emissions from automobiles gave rise to the computerization of the automobile. Hydrocarbons, carbon monoxide and oxides of nitrogen are created during the combustion process and are emitted into the atmosphere from the tail pipe. There are also hydrocarbons emitted as a result of vaporization of gasoline and from the crankcase of the automobile.

II. RELATED WORK

As population increases, usage of the vehicles also increases in a wider scale. Most of them prefer for two wheeler transporting systems. For operating the vehicles, the license is compulsory. Normally, in driving test a candidate applied for license have to drive over a closed loop path in front of the authorities. The candidate has to drive over the path without any support over the land surface and if he fails to do he will be disqualified.

III. OPERATION OF PROPOSED SYSTEM

TRANSMITTER SIDE

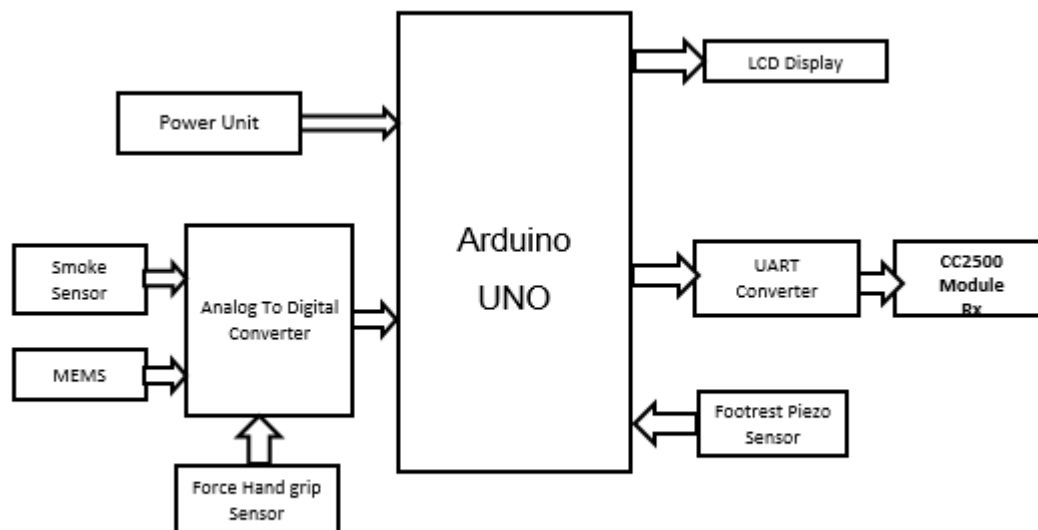


FIG 1 TRANSMITTER SIDE

The output of the smoke sensor, Force Hand Grip sensor and MEMS sensor is given to the ADC. The output of ADC is given to the Arduino controller. An LCD Display is used to display the analysis of the driver's driving pattern. A Footrest sensor is also given to the digital pin of the controller to determine whether the driver takes his foot from the vehicle or not. The collection of information is taken and sent to the main system through CC2500Rx using an UART converter.

RECEIVER SIDE

The information sent from the transmitter side is received by the CC2500 module of the receiver side. The information is made available at the system and it is then sent to the IOT server to make the driver's pattern and his log history available in a protected way. The Administrator checks the results and can issue the licence to each person.

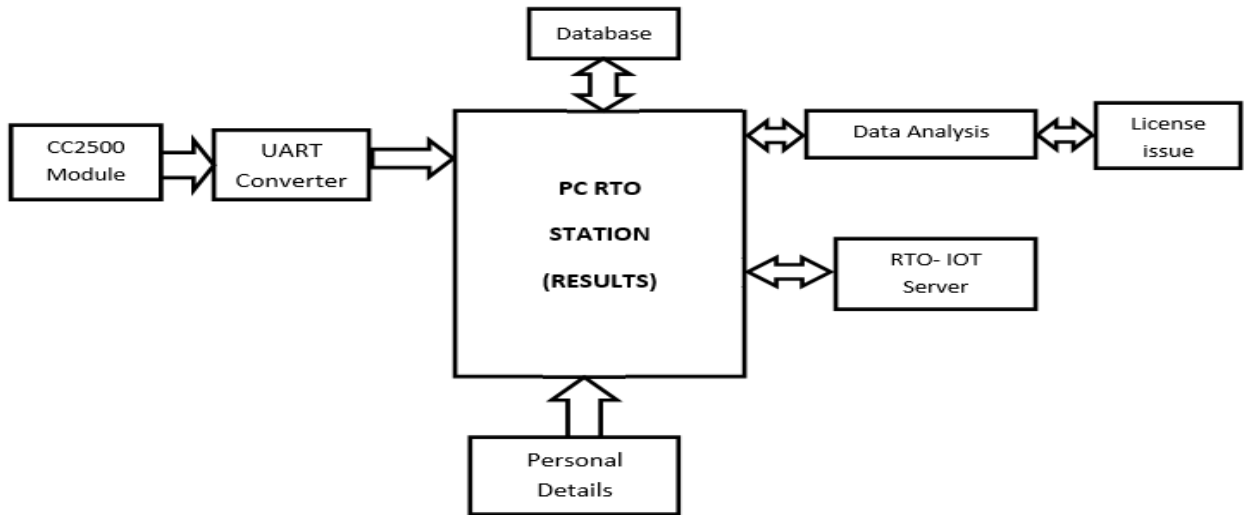
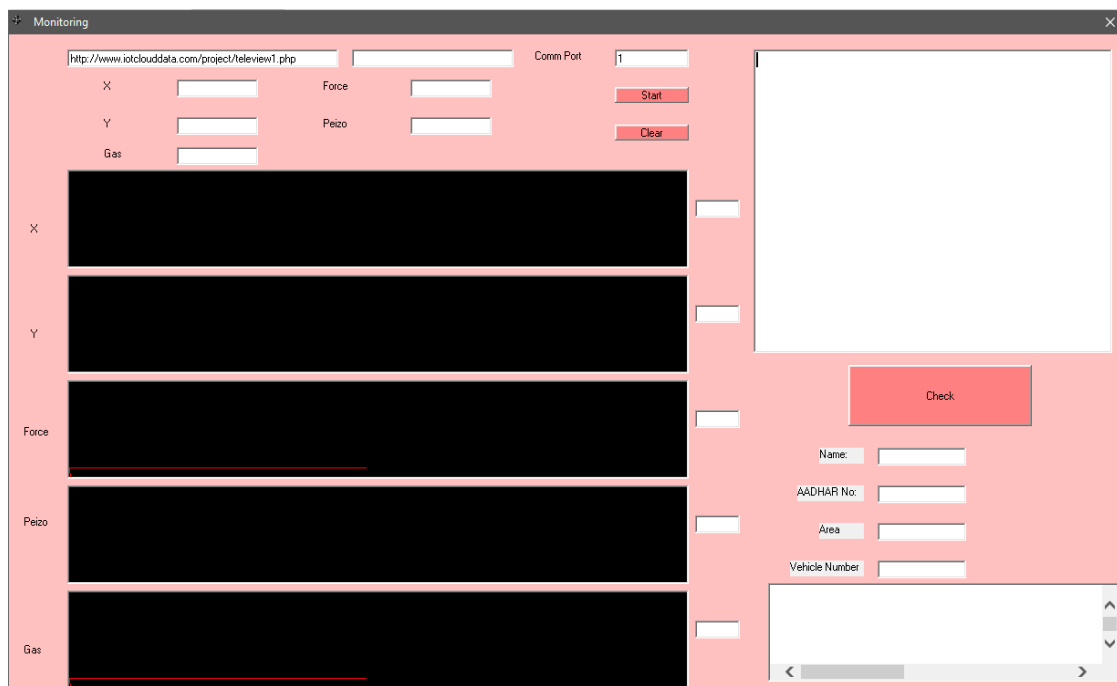


FIG 2 RECEIVER SIDE

IV. EXPERIMENTAL RESULTS



V. CONCLUSION

The on-line driving pattern recognition is achieved by calculating the feature vectors and classifying these feature vectors to one of the driving patterns in the reference database. This project is built with a method to identify driving patterns with enough accuracy and less sampling time compared than other manual driving pattern recognition.

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