

## SMART DRIVING TEST TRACK

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**Abstract** - "Smart Driving Test Track" has been designed to automate the process of issuing driving license. The system is developed for improving the standards of license issuing mechanism in order to provide road safety. In the proposed system we are going to design commonly used Reverse S shaped track.

The objective of this setup is that, to change traditional system of issuing driving license and make system automated. The limitations of manual process are eliminated in proposed system. This system is designed to reduce the road accidents due to untrained license holders.

### 1. INTRODUCTION

#### 1.1 Problem Definition :

Road safety is an issue of national concern as it impacts on the economy, public health and general welfare of the people. More than 85% of traffic is carried out by road transport because of easy availability of roads, adaptability to individual needs and cost savings. The survey conducted by International Finance Corporation imply that most of the road accidents on road are happened because of improper knowledge about how to drive the vehicle. The another survey conducted shows that the 54% of license holders were not having the proper knowledge of driving the vehicle[2].

#### 1.2 Solutions and effects:

In the present scenario, the examiner (Regional Transport Officer) must be on the field during the test. RTO himself fixing his stare at the many number of test takers undertaking their license test. This in fact leads to common human error like observation, favoritism and corruption [4]. One or more inspectors from motor vehicle department has to stay long hours in the fields.

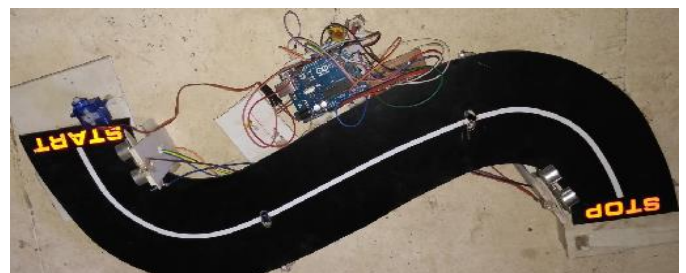
To overcome this problem we are introducing smart driving test track which will eliminate on field monitoring of ground test by Regional Transport Officer. This technology for skill assessment of obtaining driving license will reduce

corruption and thereby helps the government to select only the efficient drivers. This system is designed in order to reduce road accidents due to untrained license holders, to make license issuing process transparent, automated and corruption free.

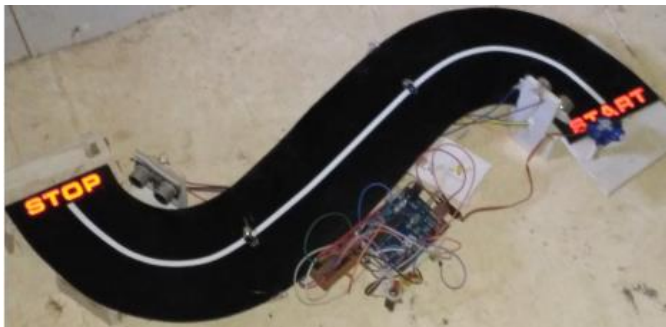
#### 1.3 Proposed Work:

In the "Smart Driving Test Track", the reverse S shaped track is automated by using ultrasonic sensors and sharp IR sensors. Ultrasonic sensors are placed along sides of the track and sharp IR sensors are deployed on the middle of the tracks. Echo of the ultrasonic sensors transmits the sound waves. If there is any car on the track then waves reflected to trigger of ultrasonic sensor, similarly transmitter of IR sensor transmits the infrared rays and it get reflected due to the car. The output of ultrasonic sensors and IR sensors is given to the analog pins of arduino uno. Arduino uno is 8 bit microcontroller. If test taker complete all the three tracks without any mistake and in stipulated time then Regional Transport Officer (RTO) will get the message that driver has successfully completed the test through GSM which is interfaced to arduino. If there is mistake by the test taker or test is not completed in stipulated time then Regional Transport Officer (RTO) will be informed by message that test is unsuccessful through the GSM.

In this way this setup reduces manual interference in the process of driving license issuing process. This makes the overall process transparent, accurate and corruption free.

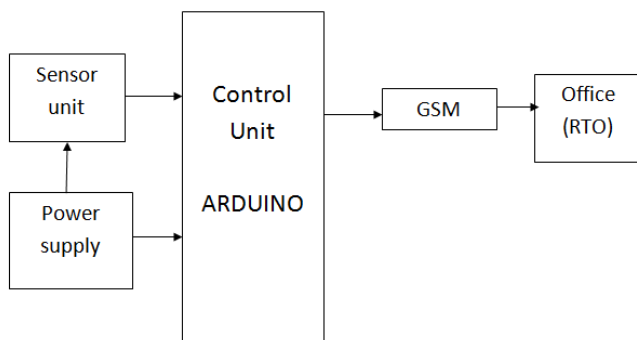


Reverse S shaped Track



Reverse S shaped Track

**2.1 Hardware Implementation:**



Conceptual Block Diagram

Above Figure shows conceptual block diagram of “smart driving test track”. Here the sensor unit consist of ultrasonic sensors and IR sensors .The output of ultrasonic sensor and IR sensor is the input for the arduino . If there is some mistake by driver during the test and message is send to RTO’s mobile through GSM.

**1. Control unit (arduino):**

The main control unit consist of arduino .The arduino software is an open source software and it makes easy to the code and upload it to board .The power supply is given to the arduino of 9-12V DC.

**2. Sensor unit :**

Sensor unit consist of Ultrasonic sensors and sharp IR sensors used to sense the mistakes of the driver.

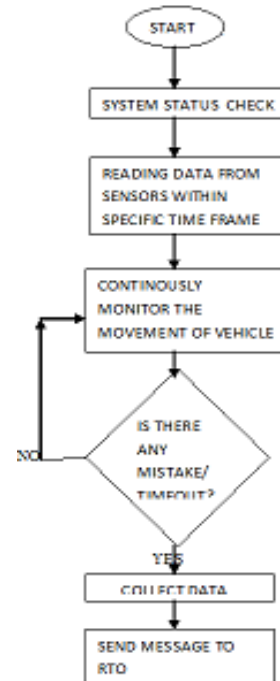
**3. GSM:**

SIM 900A module is used to send the result of the test to the RTO through message .With the help of GSM module interfacng short text message can be send to required RTO office .It operates either at 900MHz or 1800MHz frequency band.

**4. Power supply unit:**

12V power supply is used in the system .It mainly used to provide DC voltage to components on board.

**2.2 Software Implementation:**



Flowchart of smart driving test track

Above figure shows flowchart of “Smart Driving Test Track”. The process of driving license test will be done as follows: The sensors along the sides of track will check the appearance of any vehicle within specific time frame. If any vehicle is on the track then its movement is continuously monitored. The timeout/mistake by the driver can be recognized by using arduino. If there is mistake/timeout the through Global System For Mobiles (GSM), Regional Transport Officer ( RTO) will get message that is, result of the test.

**Present Theories and Practices**

In the present situation, there are two examinations conducted while issuing the driving license. Theoretical examination is conducted before practical examination [2]. Basic understanding of traffic signs, traffic regulation and safety check before using vehicle are evaluated in theoretical examination. In the practical examination driving ability of the driver is evaluated.

This overall process is manually operated. There is need of extra staff for conducting all these tests. This manual process of issuing driving license may gives less accurate results.

**Conclusion:**

The proposed system of automated driving license issuing process is advantageous over existing manual process. It will help to reduce the road accidents due to illegal licenses. This system will assure that only well trained drivers can get the license.

It can be concluded that this setup will help Regional Transport Officer (RTO) officers to maintain records systematically and it will increase transparency in driving license issuing process and also speed of process.

**References:**

1. Prince Samuel S ,Kiruba R, Saranya M, "Development of Test RIG for Automated Driving Test Track and Issuing License Using LabVIEW." International Journal on Recent and Innovation Trends in Computing and Communication Volume: 3 Issue:12.
2. Komal A. Margale,Priyanka M.Pawale,Amruta A.Patil,Jyoti Waykule "Driving License Test Automation Using VB" . International Journal Of Engineering and Applied Sciences (IJEAS) Volume: 2 Issue:4 April 2015.
3. Ms.Suvarna A.Dodke "AUTOMATION OF DRIVING LICENSE TEST USING WIRELESS SENSOR NETWORK" International Research Journal of Engineering and Technology (IRJET) Volume: 02 Issue: 08 |Nov-2015 .
4. Subin Simon Thottiyil, Simon K. Jose, Amol Joy , Tintu Peter "Diving license Test Automation Using LabVIEW"

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