

# DESIGN AND DEVELOPMENT OF ARM ABSED ELECTRONIC TEST EVALUATION SYSTEM FOR RTO

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## ABSTRACT

*Electronic test evaluation system for driving license is very useful now a days, as there is increase in the human intervention in the system. This system make the driving license procedure transparent to human being. The proposed technological solution is advancement towards the automation of system and improves the driving test accuracy. As a contribution to society this system reduces the number of road accidents occurs due to untrained drivers.*

**Keywords:** ARM, ZigBee, Sensors, E-application, GUI & Driving Skill.

## [1] INTRODUCTION

In the present system the candidates who have applied for driving license have to go through theory and practical exam. The theory exam test the candidate knowledge on different traffic signs, traffic regulation. Different ways are use to conduct of theory exam like, orals, question paper or computer based exam. The pass candidate in theory exam allowed for practical exam.

The survey conducted by International Finance Corporation shows that most of the accidents on road are cause due to improper knowledge of how to drive the vehicle. The system which were used now a days having certain limitations. This systems is manually operated system. As there are interference of human being, it will make the system corrupted. The middle agent take large amount of fees for licence and because of this those candidate who will not perform the test also got the licence. This situation causes the untrained licence holders.

As it will generate the untrained holders which results in the driving test quality degradation. To avoid all these problems which will degrade the system performance an electronic system used. This electronic system eliminate the middle agents who gives the licence to untrained persons. For eliminating all these an Electronic RTO Test Evaluation System should be develop. This proposed system give the licence to only trained persons. The overall ability of candidate required to drive the vehicle will be tested. The results produced are transparent and cost effective.

## 2. PROPOSED SYSTEM

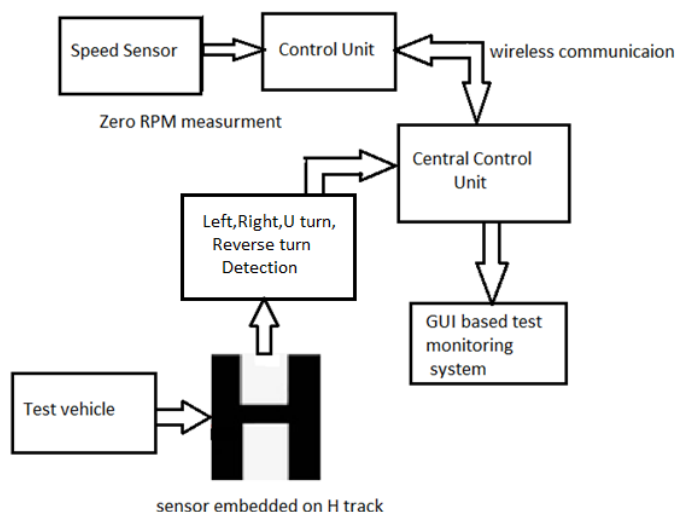


Fig.1. Proposed system block diagram.

This system consist of a Arm LPC2148 processor which use as a control unit. This unit control the communication between the software interface and the sensor data. When any one of the sensor pairs makes a high to low transition, it enable the on vehicle speed measurement unit. This unit is enable only when the vehicle inside the track and when vehicle is outside the track it is disabled. If any sensor pair make high to low transition, indicate that candidate is fail. If both the condition satisfy by the candidate then result is pass.

## 2.1 Hardware

The proposed system consist of ARM processor, zigbee based wireless communication and IR sensor pairs.

### 2.1.1 Arm Processor

The LPC2148 is used as controlling unit for the system.It used to communicate the sensor data with GUI based system.

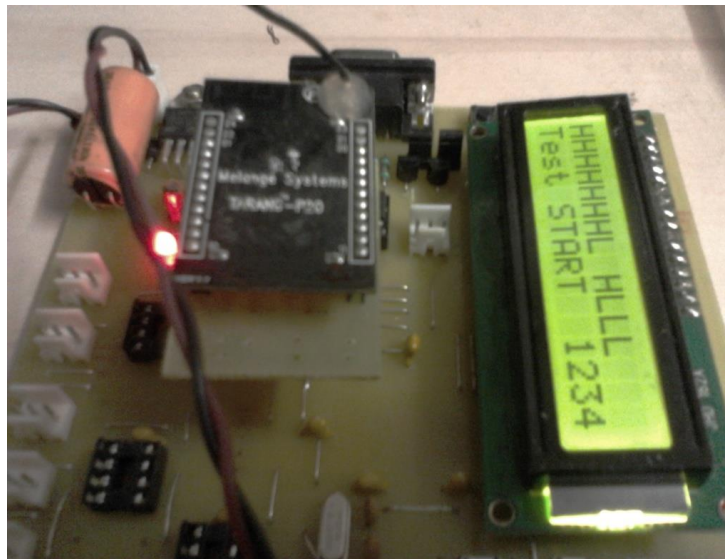


Fig.2. Arm processor pcb.

### 2.1.2 IR Sensor

#### 2.1.2.1 IR Transmitter:

IR transmitter consist of IC 555 in a astable multivibrator mode. It generate the 38KHz frequency and preset is used for adjusting the frequency.

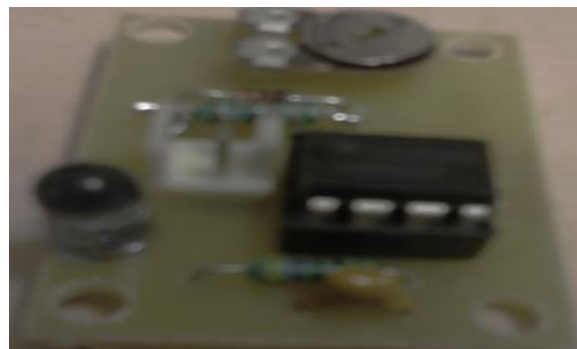


Fig.3. IR transmitter

#### 2.1.2.2IR Receiver:

IR receiver consist of TSOP 1738 which receive the signal generated by the transmitter. It will receive only 38KHz signal generated from transmitter.



Fig.4. IR receiver

### 2.1.3 Zigbee

At present, wireless communication technology has been used widely. It satisfy the need of low power dissipation and low speed among wireless communication devices. It uses the wireless mesh network. It support more than 64,000 devices on a single network. Zigbee connects the long range device in a single network.

#### 2.1.4 RPM Measurement

RPM measurement is the speed measurement system. It is the sensor used to measure the speed of the vehicle which is inside the test track.If the vehicle is not on the track speed sensor can not measure the speed of the vehicle.

### 2.2 Software

The visual basic 6 software is used for creating the GUI for application form.This GUI require basic information about the candidate like name,address, contact number,date of birth.

Fig.5. GUI for displaying test started message

Fig.6. GUI for displaying test passed message.

The screenshot shows a window titled "Driving Licence Test". The main heading is "Driving Licence Test". Below it, there is a "Student Details" section with the following fields: Name (Shweeta Salokhel), Address (Kolhapur), Contact (9850875421), Date Of Birth (01/06/1989), and Date Of Issue (25/04/2016). To the right, there is a "Test Result" section showing "Test Failed". Below this, there is a "Select COM Port" dropdown menu set to "COM2", a "START TEST" button, and a "Clear" button. At the bottom, there are "NEW STUDENT" and "PRINT" buttons.

Fig.7. GUI for displaying test failed message.

The screenshot shows the same "Driving Licence Test" window. The "Test Result" section now displays "U Turn Ok". In addition to the "START TEST" button, there is now a "U TURN TEST" button. The "REVERSE TEST" button is also present. The "Clear" and "Close" buttons are still visible.

Fig.8. GUI for displaying u turn ok message

The screenshot shows the same "Driving Licence Test" window. The "Test Result" section now displays "Left Turn". The "U TURN TEST" button is still present. The "Clear" and "Close" buttons are still visible.

Fig.9. GUI for displaying left turn message

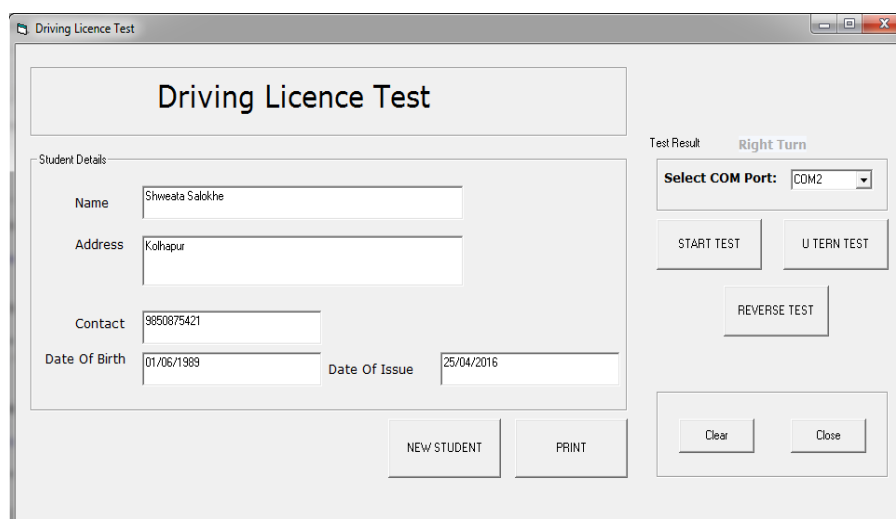


Fig.10. GUI for displaying right turn message.

### 3. CONCLUSION

The methods used now a days for driving license test are manual. The proposed system gives solution to this problem. As the system developed is automated it avoids the manual interference. This system causes trained users into the system. As untrained users causes the accidents this system overcome all this drawback. It also raise the level of transparency.

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