

# Driving License Test Automation Using VB

Komal A. Margale, Priyanka M. Pawale, Amruta A. Patil, Jyoti Waykule

**Abstract**— The System presented in this paper expedite the testing of candidates aspiring for a driving license in a more efficient and transparent manner, as compared to the present manual testing procedure existing in most parts of Asia and Pacific region. The manual test procedure is also subjected to multiple limitations like time consuming, costly and heavily controlled by the experience of examiner in conducting the test. This technological solution is developed by customizing 8051 controller based embedded system and VB based virtual instrument. The controller module senses the motion of the test vehicle on the test track referred to as zero rpm measurement. The proposed technological solution for the automation of existing manual test process enables the elimination of human intervention and improves the driving test accuracy while going paperless with Driving Skill Evaluation System. As a contribution to the society this technological solution can reduce the number of road accidents because most accidents results from lack of planning, anticipation and control which are highly dependent on driving skill.

**Index Terms**— LCD, Microcontroller 8051, PC With VB software, Power Supply, , Pressure switch, RF Module

## I. INTRODUCTION

Despite continued efforts made by the different state governments in India, various international and national organizations continue to highlight the fatalities on the roads caused by inconsistent process of issuing driving licenses across India. The study conducted by the International Finance Corporation (IFC) indicates that the process of obtaining driving license in India is a distorted bureaucratic one. The independent survey conducted shows that close to 60 percent of license holders did not even have to take the driving license test and 54 percent of them were untrained to drive [1]. The study conducted by IFC also shows that the driving license is in that category of public services that involves corruption of a direct demand and supply of bribes between citizens and bureaucrats. The study also indicates that the corruption is focused on agents that work as intermediaries between the officials and citizens. This practice of agent-usage promotes corruption and subsequently results in higher payment for licenses, reduces driving test

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quality and this eventually results in unskilled drivers on road [1-2]. Hence the only solution for this problem is to implement an efficient, transparent and cost effective driver testing system.

In the present scenario, the candidates who have applied for driving license have to appear for a theoretical examination and a practical examination. The theoretical examination evaluates the candidate knowledge on different traffic signs, traffic regulation and also the basic understanding of simple safety check before using a vehicle. Different ways are adopted for the conduct of theoretical examination. These are oral examination, question paper or computer based examination. Theoretical examination is conducted before the practical examination [5]. A pass in the theoretical examination is a prerequisite for the practical examination. The practical examination comprises of two tests namely off-road test and on-road test. The off road test is for examining the candidate's ability in controlling the vehicle. The on-road test is conducted in light traffic on normal road [3-5]. Normally, the on-road test is carried out after completing off-road test.

The off-road test tracks are of three types – H, S and 8 shaped tracks. In India, the test track adopted for off-road test purpose varies from state to state

## II. DESIGN

### Block Diagram

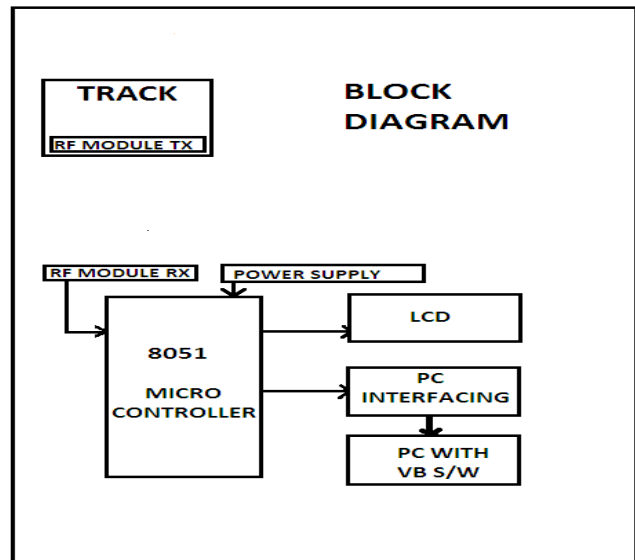


Fig.1. block diagram

## III. WORKING:

In our proposed track, in addition to detect interruption along the edges, v must also check if the vehicle moves correctly in the specified path. For detection of the correct path, v again use the same setup consisting of metal strips (pressure switch). Here we are using pairs of metal strips and they are placed in

positions as shown in the diagram. The test taker must move to the following path.

That is the test taker must start at start position and end the test at stop position. Here the metal strip is kept horizontally across each path. When the vehicle moves through the respective path, the metal strip is not conducting and this is done in a sequential manner that is from path start to stop end. On successful completion of the test, 'pass' report will be generated or else a "fail" report.

#### IV. MATERIAL

##### Sensor's on the track

The pressure switch(metal strip)are used as pairs where each pair consists of a transmitter and a receiver. The IR sensors can be also referred to as a long range IR start, stop pair. Sensors are mounted on to yardstick for embedding on the track. So our modified track is shown in below figure 2. The IR sensor pairs, pressure switch used for detecting the touncing of sensor mounted yardstick or the crossing of line intersection between the sensor. Two IR sensor's are used at 'START' and 'STOP' position of the track. IR sensor module FC-51.

International Journal of Instrumentation and Control Systems (IJICS) Vol.3, No.3, July 2013 In that journal total 12 photo sensor's are used pairs. These sensors are interfaced to LabVIEW based Test Monitoring and Result Issuance system using NI USB 6009 DAQ card.

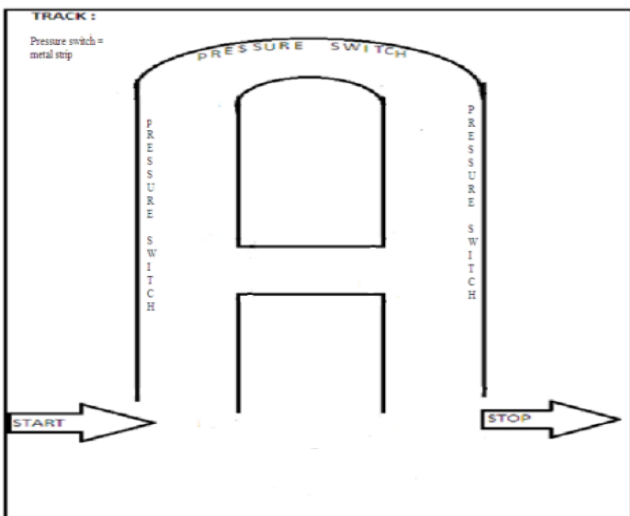


Fig.2 Modified H track with curved shape (like U shape)

Speed sensor is used into the vehicle wheel to enable or disable of zero rpm measurement system. These sensors are interfaced to the microcontroller based central control unit. When either of these sensor pairs makes a high to low transition, the microcontroller based central control unit enables or disables the microcontroller based on-vehicle control unit for monitoring the vehicle motion. The on-vehicle control unit for zero rpm measurement is designed to perform the measurement only when the vehicle is inside the sensor embedded track. In other words, the on-vehicle control unit for zero rpm measurement is enabled only when the test vehicle is inside the track and it is disabled when the test vehicle is outside the track.

#### V. PROCEDURE

##### Data Acquisition System In VB

**User personal details:** The test taker enters his personal data in the specified field. Here the test taker has to fill his name, date of birth, e-mail, mobile number, address and gender. If any one of the data is not filled, then a pop up window displays for filling the data.

**Test Status:** The test status of the candidate who is undertaking the test is displayed in this test status box. On successful completion of the test, 'PASS' message will be displayed or else a 'FAIL' message will be displayed.

**System Status:** Here the system status will be displayed i.e. It displays the status of the test taken by the candidate. Here the system first gets ready, initializes, monitors, save the report and displays the report.

##### Test Taking:

Once the mandatory details are completed, then the test taker can get ready for his test by entering the vehicle. On his word the controller can press the 'START' button on the software interface. This will mark the commencement of the test (for the controller at the PC interface, the LCD display will show processing). If all goes well and the driver returns his car safely without any deviations in the 'H' (curved)track, press the 'STOP' button on the software interface. This will point to the end of his test (for the controller at the PC interface, the LCD display will show some indication). The candidate can now get his result at the software interface as depicted below.

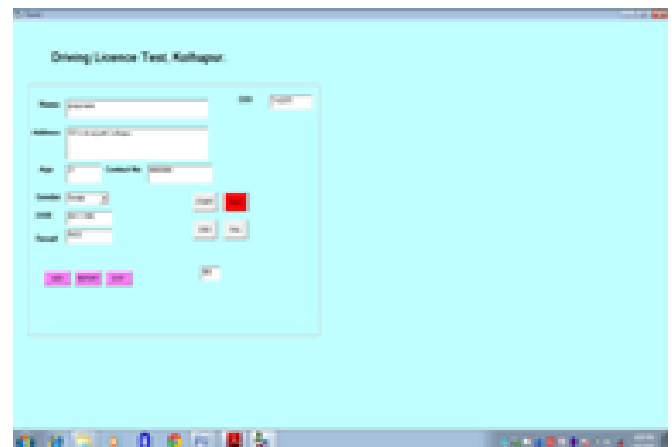


Fig. 3. Pass status displayed.

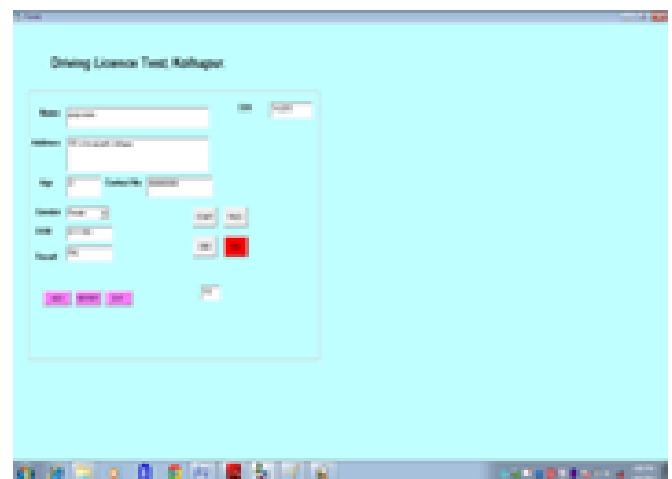


Fig. 4. Fail status displayed.

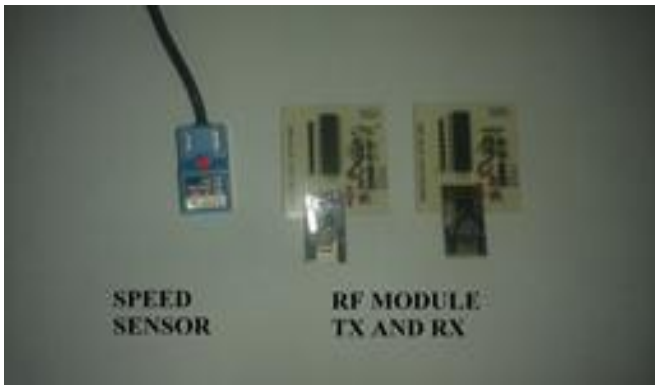


Fig.5. sensors in the circuit

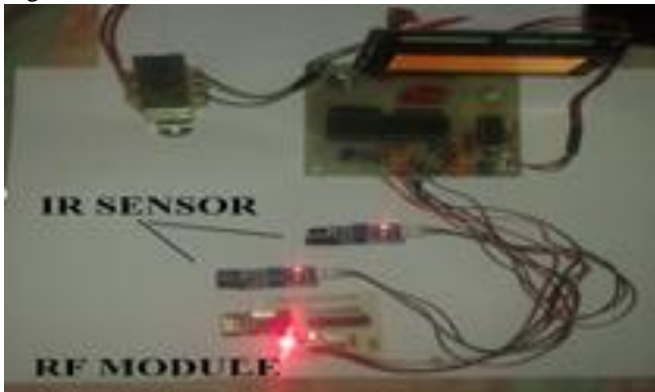


Fig.6. Circuit placed near to the Track



Fig.7. "OK" displayed



Fig. 8. "FAIL" Displayed

## VI. RESULTS AND DISCUSSION

There are three condition to get driving license.

- 1.to cover the complete path.
- 2.do not touch or hit the edges.
- 3.speed of the vehical must not to be zero.

When all these condition are satisfy then the pass result will be displayed in the form of report, otherwise fail report will be generated.

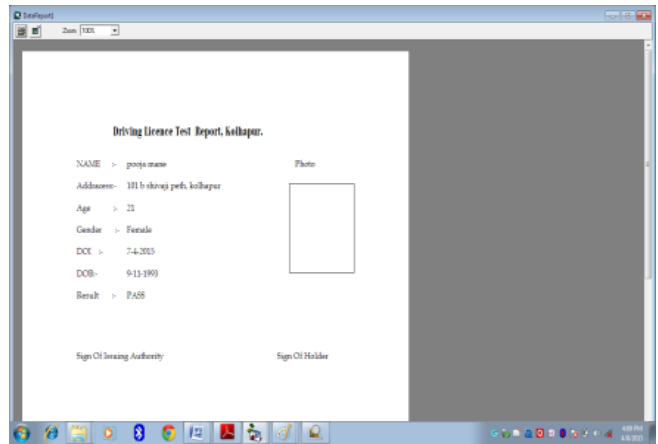


Fig. 9. Pass Report

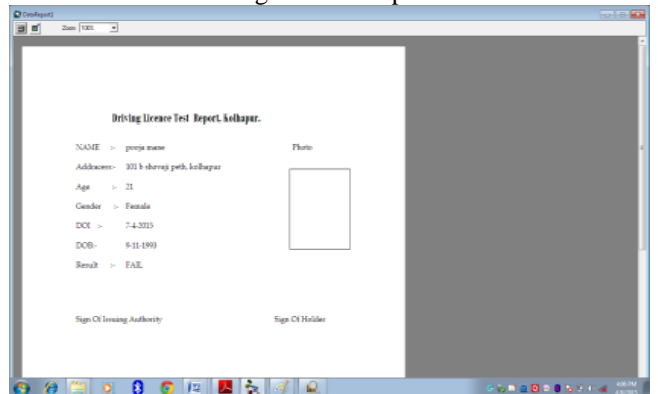


Fig.10. Fail Report.

## VII. CONCLUSION

A Driving Licence test automation system using RF Module based wireless acquisition is discussed. The usage of VB based technology for skill sssessment in the automated driving test process eliminates human intervention leaving no scope for manipulation and negotiation. Hence we can say that the system increases the level of transparency in the driving skill test process and decreases the rate of corruption in the process of issuing the driving license.

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## REFERENCES

- [1] Marianne Bertrand, Simeon Djankov, Remma Hanna and Sendhil Mullainathan, "Obtaining a Driver's License in India: An Experimental Approach to Studying Corruption", The Quarterly Journal of Economics (2007) 122 (4): 1639-1676.
- [2] "Driver errors cause most road deaths in India". The Times of India on the web. 2010 - 07-04.
- [3] Government of India. Ministry of Road Transport and Highways. Road accidents in India:

2009,2011-08-23.

[4] India suffers from highest number of road accidents: WHO". The Financial Express on the web.

2011-05-05.

[5] Mondal, P, Abhishek Kumar, U. D. Bhangale, and Dinesh Tyagi. "A Silent Tsunami on Indian Road: A Comprehensive Analysis of Epidemiological Aspects of Road Traffic Accidents". British Journal

of Medicine & Medical Research: 1(1): 14-23, 2011. 2011-09-26.

[6] ShizhuangLin; JingyuLiu; YanjunFang; Wuhan Univ., Wuhan" ZigBee Based Wireless Sensor

Networks and Its Applications in Industrial"IEEE International Conference on Automation and

Logistics, 200718-21 Aug.2007page(s):1979-1983Location:Jinan

[7] ZigBee Specification v1.0, ZigBee Alliance, December 14th, 2004.

[8] Xiuping Zhang; Guangjie Han; Changping Zhu; Yan Dou; Jianfeng Tao;" Research of

WirelessSensor Networks based on ZigBee for Miner Position", [J] International Symposium on

Computer,Communication, Control and Automation, IEEE. 29 July 2010Pg1 – 5.

[9] Dunfan Ye, Daoli Gong, Wei Wang,"Application of Wireless Sensor Networks in

EnvironmentalMonitoring"2nd International Conference on Power Electronics and Intelligent

TransportationSystemIEEE2009pg 2563-2567

[10] Chen, B., Wu, M., Yao, S., & Binbin, N. (2006). ZigBee technology and its application on wireless

meter reading system. *Industrial Informatics, 2006 IEEE International Conference on*, August 2006, 1257-1260.

[11] Michal VARCHOLA, Milos DRUTAROVSK, "ZigBee based Home Automation Wireless

Network", Acta Electrotechnica Informatica No.4 Vol.7, 2007. ISSN 1335-8243.

[12] Wells, Lisa & Jeffery Travis, "LabVIEW for Everyone", Prentice-Hall, New Jersey, 1996.

[13] K D Schierbaum, M Cherradi and M Bouchtaoui, "Computer-control of surface science experiments with LabVIEW", International Journal of Computer Applications 3(4):1-8, June 2010.

[14] du Preez, S.J. Sinha, S. Hutton, M. Nat. Instrum., Midrand "A LabVIEW courseware customized for

precollege learners", AFRICON 2007 , On page(s): 1 – 6, ISBN: 978-1-4244-0987-7, Digital Object

Identifier: 10.1109/AFRCON.2007.4401571, 26-28 Sept. 2007.

[15] Vento, J.A., "Application of LabVIEW in higher education laboratories", Frontiers in Education

Conference, Digital Object Identifier: 10.1109/FIE.1988.35023, Austin, TX, USA, July 08, 2002.

[16] Rick Bitter, Taqi Mohiuddin, Matt Nawrocki, "LabVIEW Advanced Programming Technique", CRC Press, 2001

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