

Automation of License Test Drive Monitoring using Embedded System

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Abstract: Driving license system is a very difficult task for the government to monitor. Normally, in license tests a candidate applied for license have to drive over a closed loop path like the number (8) 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. For that, the authorities have to watch him/her manually. But in this project is about the automation of driving license test system.

Index Terms: Load cell, Proximity Sensors, Fingerprint Sensor, LCD, PC with VB Software.

I. INTRODUCTION

In our project, we have developed a system for watching the candidate whether he/she is eligible for getting license by using a load cell. The load cell changes its output when there is any pressure change over the surface. Thus, we can detect the candidate who fails to keep his/her foot in the vehicle by differential output from the load cell. Then, it was processed by the micro-controller and the output can be obtained and we placed ultrasonic sensor for hand signal detection and no of count detection. While a person entering for license test he was authenticated by finger.

II. EXISTING METHOD

Driving license system is a very difficult task for the government to monitor. Normally now a days candidate have to appear along with her vehicle for test drive in front of RTO and put closed loop like a number 8. In this process RTO is necessary to monitoring the candidates. If the candidate is passed in this test then he can eligible to get license. If the candidate is fail then the disqualified candidate provide some amount as corruption to RTO thus by he getting license illegally.

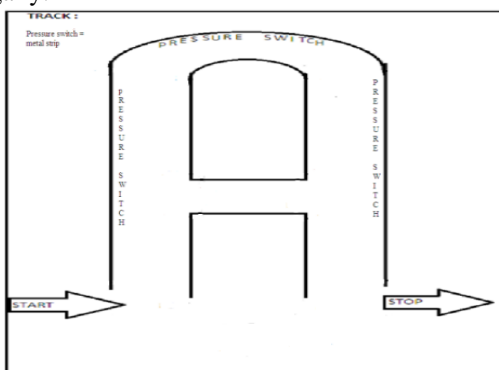


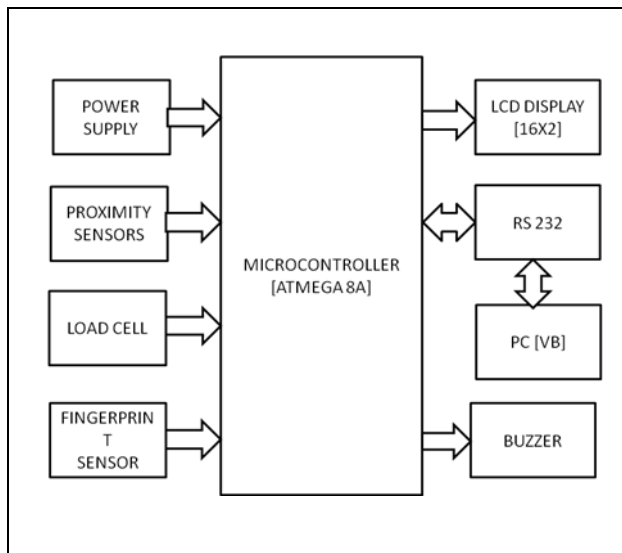
Fig: Track

III. PROPOSED METHOD

But in this smart automation process if they candidate want to get license means. First candidate want to keep finger in finger print sensor then it shows the history of the candidate that history contains candidate bio data, address, number of appearances for this license test and how many times he failed in this test. After this analysis candidate have to take a test drive on load cell based panel then the load cell senses the weight of the candidate and bike. If candidate have any foot touch on panel then there will be some mismatches occur due to deviation in weight it is calculated by load cell. Proximity sensor senses whether the candidate indicates the turning via hand or not if it not then it is noted as a mistake. Finally computer will decide based on the candidate performance and it generate license to the qualified candidate.

IV. DESIGN

BLOCK DIAGRAM



V. POWER SUPPLY UNIT

1) Transformer

A transformer is an electro-magnetic static device, which transfers electrical energy from one circuit to another, either at the same voltage or at different voltage but at the same frequency.

2) Rectifier

The function of the rectifier is to convert AC to DC current or voltage. Usually in the rectifier circuit full wave bridge rectifier is used.

3) Filter

The Filter is used to remove the pulsated AC. A filter circuit uses capacitor and inductor. The function of the capacitor is to block the DC voltage and bypass the AC voltage. The function of the inductor is to block the AC voltage and bypass the DC voltage.

4) Voltage Regulator

Voltage regulator constitutes an indispensable part of the power supply section of any electronic systems. The main advantage of the regulator ICs is that it regulates or maintains the output constant, in spite of the variation in the input supply.

VI. SENSORS

There are 2 types of sensors are used in this

- A. Finger print sensor.
- B. Proximity sensor.

A. Finger print sensor

In this we are using "U 4000B" sensor for getting the Fingerprint image and to store that in the database. It is an excellent fingerprint input device can be widely applied in social security, public security, attendance, fingerprint encryption, embedded, and many other applications. U 4000B miniature fingerprint scanner to automatically read the fingerprint image, and through USB interface to transfer digital fingerprint images to the computer-controlled technology to support the Bio key SDK development tools. Require authentication for laptop computers, desktop computer or other personal computing devices, it is the ideal accessory.



B. Proximity sensor

A proximity sensor is a sensor able to detect the presence of nearby objects without any physical contact. A proximity sensor often emits an electromagnetic field or a beam of electromagnetic radiation (infrared, for instance), and looks for changes in the field or return signal. The object being sensed is often referred to as the proximity sensor's target. Different proximity sensor targets demand different sensors. For example, a capacitive or photoelectric sensor might be suitable for a plastic target; an inductive proximity sensor always requires a metal target.

The maximum distance that this sensor can detect is defined "nominal range". Some sensors have adjustments of the nominal range or means to report a graduated detection distance.

Proximity sensors can have a high reliability and long functional life because of the absence of mechanical parts and lack of physical contact between sensor and the sensed object.

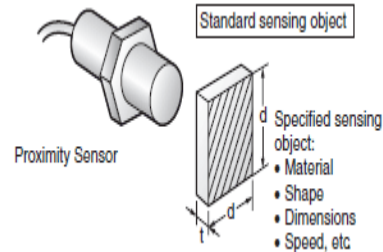


Fig: proximity sensor

VII. MICROCONTROLLER

A. Atmega8

1. High-performance, Low-power AVR® 8-bit Microcontroller
2. Advanced RISC Architecture
3. High Endurance Non-volatile Memory segments
4. Peripheral Features
5. Special Microcontroller Features
6. I/O and Packages
7. Operating Voltages
 - 2.7 - 5.5V (ATmega8L)
8. Speed Grades
 - 0 - 8 MHz (ATmega8L)
 - 0 - 16 MHz (ATmega8)
9. Power Consumption at 4 MHz, 3V, 25°C

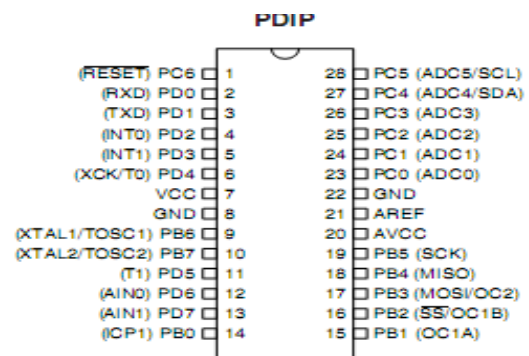


Fig: Pin configuration

VIII. HARDWARE COMPANENTS

A. MAX 232

The MAX220–MAX249 family of line drivers/receivers is intended for all EIA/TIA-232E and V.28/V.24 communications interfaces, particularly applications where ±12V is not available. These parts are especially useful in battery-powered systems, since their low-power shutdown mode reduces power dissipation to less than 5µW.

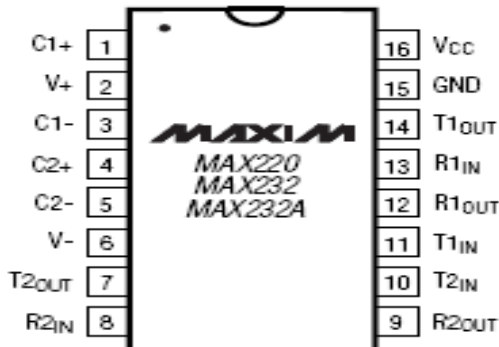


Fig: Pin diagram of MAX232

B. DB-9 Connector

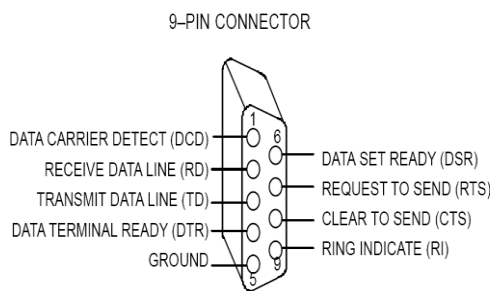


Fig: DB-9 Connector

C. LCD Display

A liquid crystal display (LCD) is a thin, flat display device made up of any number of color or monochrome pixels arrayed in front of a light source or reflector. Each pixel consists of a column of liquid crystal molecules suspended between two transparent electrodes, and two polarizing filters, the axes of polarity of which are perpendicular to each other. Without the liquid crystals between them, light passing through one would be blocked by the other. The liquid crystal twists the polarization of light entering one filter to allow it to pass through the other.

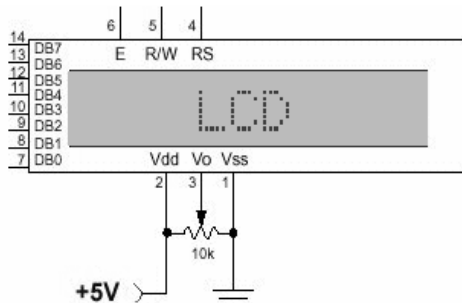


Fig: pin diagram of LCD

D. LOAD CELL

It is a transducer that is used to convert a force into electrical signal. This conversion is indirect and happens in two stages. Through a mechanical arrangement, the force being sensed deforms a strain gauge. The strain gauge

measures the deformation (strain) as an electrical signal, because the strain changes the effective electrical resistance of the wire. A load cell usually consists of four strain gauges in a Wheatstone bridge configuration. Load cells of one strain gauge (quarter bridge) or two strain gauges (half bridge) are also available.^[citation needed] The electrical signal output is typically in the order of a few mill volts and requires amplification by an instrumentation amplifier before it can be used. The output of the transducer is plugged into an algorithm to calculate the force applied to the transducer.

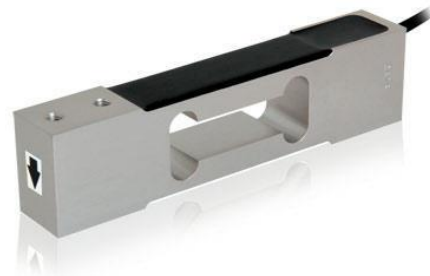


Fig: Load Cell

Applications

- Portable weigh scales
- Platform scales
- Electronic weighbridge or truck weighing
- Electronic crane scales
- Hopper/Tank/Silo weighing
- Finding Center of gravity
- Onboard weighing
- Railcar weighing

Advantages of proposed system

- It will reduce man power.
- Time wastage will be avoided.
- Low implementation cost.

IX. CONCLUSION

License is very necessary to drive on highways if some persons doesn't know well driving they are getting license by bribe on RTO.

By this project we can provide license only for eligible candidates. The proposed automated driving license test is advantageous over existing manual test.

X. REFERENCES

- [1] [1] komal A. Margale, priyanka M. Pawale, AmrutaA. Patil, Jyotiwaykule "Driving license test Automation using VB", International Journal of Engineering and science (IJAES) Vol.2 pp.2394- 3661,2015.
- [2] [2] Archana R.Raut, Dr.L.G.Malik "ZigBee Based Industrial Automation Profile for Power Monitoring Systems", International Journal on Computer science and Engineering (IJCSSE) Vol.3pp.2028-2033,2011.
- [3] [3] D. ArchanaThilagavathy, prasana R "Finger Print Based License Authentication Scheme for Indian Scenerio", Archives of Applied Science Research Vol. 7 pp. 49 – 53 , 2015.
- [4] Shyang-Lihchang, Li Shien Chen, Yung-Chung And Sei Wan Chen, "Automatic License Plate Recognition" IEE Transactions on Intelligent Transportation System Vol.5 pp.552-558, March 2004.

- [5] Afaz Uddin Ahmed, Taufiq Mahumad Masum, Mohammad Mahbuar Rahman "Design of Automated Secure Garage System Using License Plate Recognition Technique" IEE Transaction on Intelligent Systems Vol.2 pp.22- 28, January2014.
- [6] Shin-Ting Jeng and Lianyu Chu "Tracking Heavy Vehicle Based on Weigh-In-Motion and Inductive loop signature Technologies"IEE Transactions on Intelligent Transportation System,Vol.16, pp.632-641, April 2015.
- [7] Francisco Moraeso liveira -Neto, Lee D. Han, and Myong Kee Jeong, "An Online Self-Learning Algorithm for License Plate Matching" IEE Transactions on Intelligent Transportation System, Vol.14 pp.1806-1816,December 2013.
- [8] M. Suganya, K. Senathipathi, K.R.Gowtham " Finger Print Based License Checking for Auto- Mobiles" IEE-Fourth International Conferenceon Advance Computing, December 2012.