

AUTOMATED DRIVING TEST AND ISSUING OF DRIVING LICENSES

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Abstract -To prevent accident due to under age children to avoid the making of illegal license as new automation system proposed. The purpose and propose of the system that need to be design a sensor which is wireless which work on the basis of detection of result. The system help us to eliminate and to improve the Indian driving license authority so that the people making the falls license will be stop. The license will be issued to an applicant depending upon skill of driving by use of the number of sensor which are connected to embedded system the system will compare with the given parameter given by the driving license authority.

Key words: WSN, GPS, Map Matching, Gyro sensor, RPM sensor

1. INTRODUCTION

A driving license is an official document certifying that the holder is able to drive a motor vehicle. Most of the person is dying on road accident in every 30 seconds because of ineligible drivers with illegal license. So it is very important to disassociate the driving ability test from the licensing authority. In this process the applicant will be allotted the test vehicle for test drive with the two sensors connected to system in vehicle sending data using wireless sensor network to remote server to processed. We are giving a figure of (8) depending upon each point the angel and speed is varying. Result analysis is done by comparing the received data with previous data. If the parameter match up to a certain end near about 80% the license will be issue if not it will be rejected

2. PROPOSED WORK

The proposed work consist of hardware and software design implementation to issue driving license. Provide license to applicant by no. of steps as follows-

- 1) The applicant will be allotted the test vehicle for test drive.
- 2) Two sensors are connected to embedded system in vehicle sending data using wireless sensor network to remote server to get processed.
- 3) Result analysis is done by comparing the received data with previous data.

The sensors used are gyro sensor to define coordinates in terms of longitude and latitude of a test vehicle .While rpm sensor is used to sense and measure speed at every angle of test vehicle .wireless sensor network includes global positioning system.(GPS). GPS provide data for mapping, receives X,Y, Z co-ordinates according to position of a vehicle. The software required for proposed work is .NET for visual data while Ms-access for back end application.

3. HARDWARE DESIGN

The system hardware includes: Microcontroller (AT89C51), Serial Communication IC (MAX232), 8 bit ADC (0809), GPS Receiver, Gyro Sensor RPM sensor.

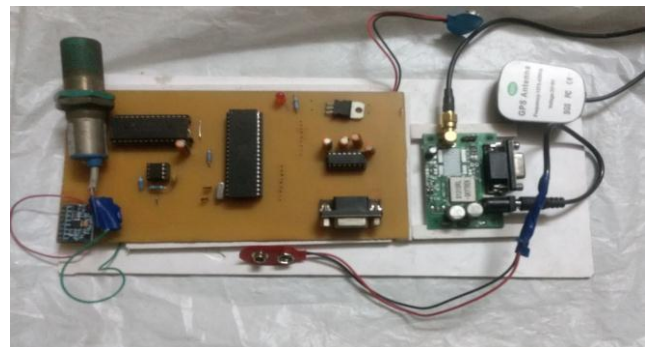


Fig -1: Hardware Design

Microcontroller (AT89C51)

The AT89C51 is a low-power, high-performance CMOS 8-bit microcomputer with 4 Kbytes of Flash Programmable and Erasable Read Only Memory (PEROM). The device is manufactured using Atmel's high density nonvolatile memory technology and is compatible with the industry standard MCS-51[®] instruction set and pin out. The on-chip Flash allows the program memory to be reprogrammed in-system or by a conventional nonvolatile memory programmer. By combining a versatile 8-bit CPU with Flash on a monolithic chip, the Atmel AT89C51 is a powerful microcomputer which provides a highly flexible and cost effective solution to many embedded control applications.

MAX232

The MAX232 is an integrated circuit first created in 1987 by Maxim Integrated Products that converts signals from a TIA-232 (RS-232) serial port to signals suitable for use in TTL-compatible digital logic circuits. The MAX232 is a dual transmitter / dual receiver that typically is used to convert the RX, TX, CTS, RTS signals.

The drivers provide TIA-232 voltage level outputs (about ±7.5 volts) from a single 5-volt supply by on-chip charge pumps and external capacitors. This makes it useful for implementing TIA-232 in devices that otherwise do not need any other voltages.

The receivers reduce TIA-232 inputs, which may be as high as ±25 volts, to standard 5 volt TTL levels. These receivers have a typical threshold of 1.3 volts and a typical hysteresis of 0.5 volts.

The MAX232 replaced an older pair of chips MC1488 and MC1489 that performed similar RS-232 translation. The MC1488 quad transmitter chip required 12 volt and -12 volt power and MC1489 quad receiver chip required 5 volt power. The main disadvantages of this older solution was the +/- 12 volt power requirement, only supported 5 volt digital logic, and two chips instead of one.

ADC (0809)

The ADC0808 ADC0809 data acquisition component is a monolithic CMOS device with an 8-bit analog-to-digital converter, 8-channel multiplexer and microprocessor compatible control logic. The 8-bit A/D converter uses successive approximation as the conversion technique. The converter features a high impedance chopper stabilized comparator, a 256R successive approximation register. The 8-channel can directly access any of 8-single-ended analog signals.

The device eliminates The device eliminates the need for external zero and full-scale adjustments. Easy interfacing to microprocessors is provided by the latched and decoded multiplexer address inputs and latched TTL TRI-STATE outputs.

The design of the ADC0808, ADC0809 has been optimized by incorporating the most desirable aspects of several A/D conversion techniques. The ADC0808, ADC0809 offers high speed, high accuracy, minimal temperature dependence, excellent long-term and repeatability, and consumes minimal power. These features make this device ideally suited to applications from process and machine control to consumer and automotive applications. For 16-channel multiplexer with common output (sample/hold port) see ADC0816 data sheet.

GPS Receiver

The Global Positioning System was conceived in 1960 under the auspices of the U.S. Air Force, but in 1974 the other branches of the U.S. military joined the effort.

The first satellites were launched into space in 1978. The System was declared fully operational in April 1995.

The Global Positioning System consists of 24 satellites, that circle the globe once every 12 hours, to provide worldwide position, time and velocity information. GPS makes it possible to precisely identify locations on the earth by measuring distance from the satellites. GPS allows you to record or create locations from places on the earth and help you navigate to and from those places.

Originally the System was designed only for military applications and it wasn't until the 1980's that it was made available for civilian use also.

4. FLOW CHART

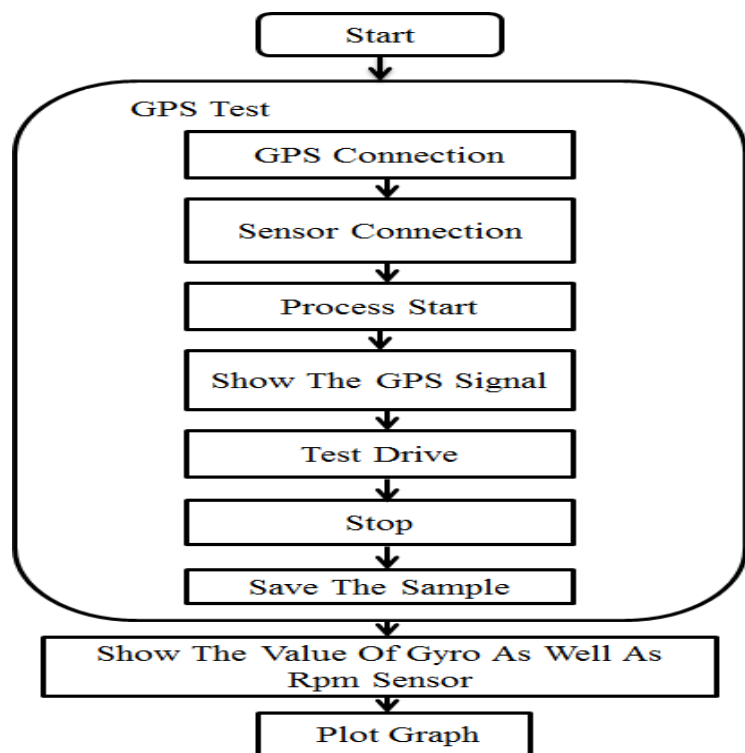


Fig -2: Driving Test Procedure

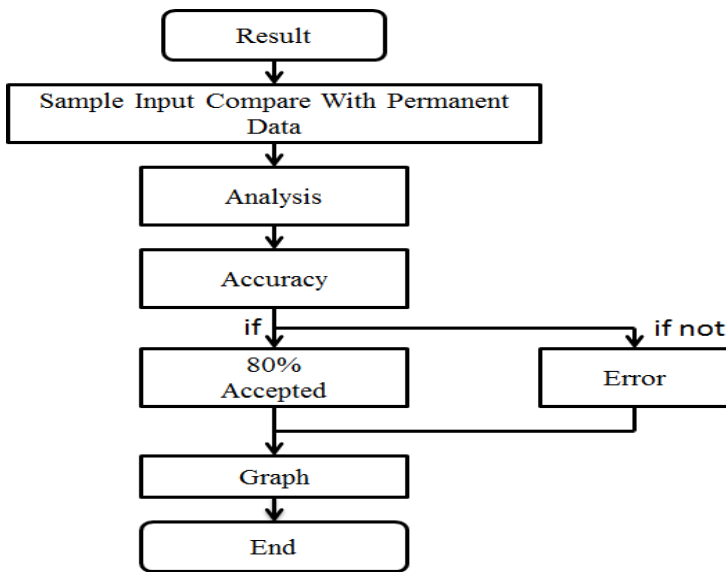


Fig -3: Result

5. GUI (graphical user interface)

GUI means (graphical user interface) used by programmer ease for the user. We use GUI in our project to get good appearance of output screen. GUI using VB.NET is developed to display driving test result. And we are showing the output at GUI.

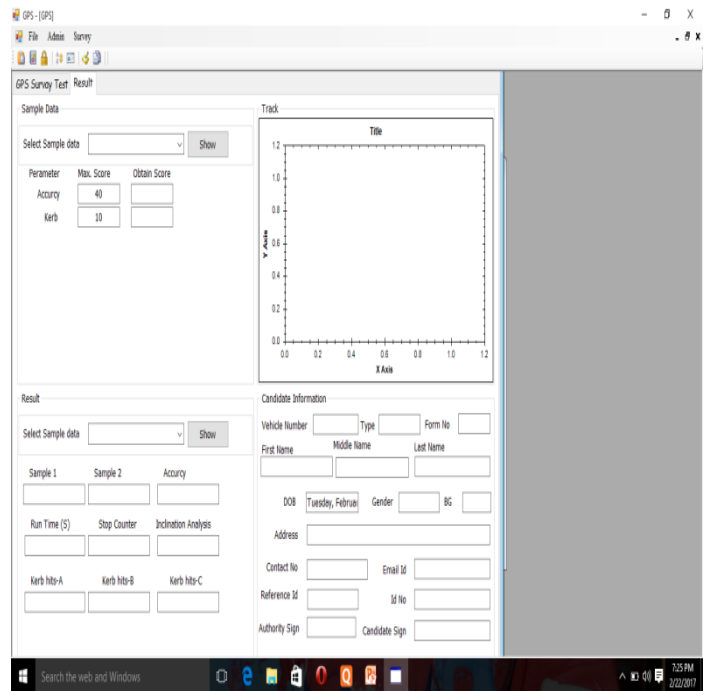


Fig -5: GUI for Display Result

6. CONCLUSION

The automated driving license test is advantageous over existing manual test .it not only promises the accuracy in driving ability test but also disassociate the test from licensing authority . Thereby will help in reducing the road accidents due to illegal licenses.

7. FUTURE SCOPE

The project can be upgraded such that the driver license will be connected to the license authority which will decide depending upon the input license will legal or not. The driver will insert the license to the car it will check the authentication of the license the driver GPS will be connected to the license authority center. It will match the information with given import if match the engine will start if not it will send the information to the RTO agent.

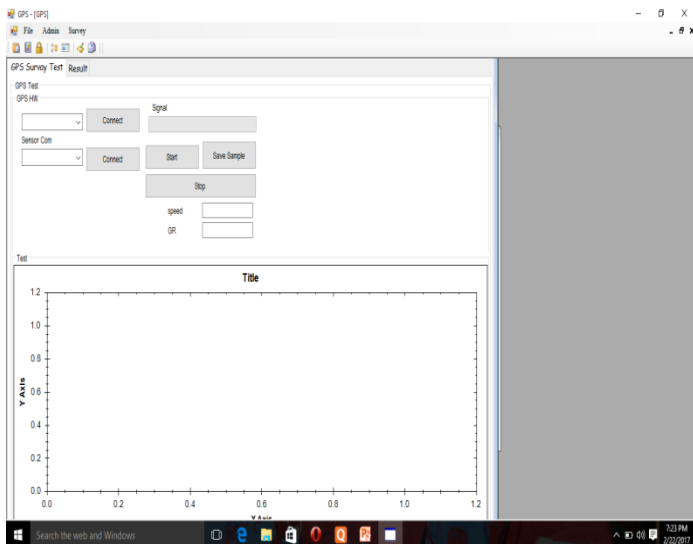


Fig -4: GUI for Driving Test

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