Two Wheeler Personal Data Logging System using GSM Modem

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Abstract— Generally if we go anywhere by a two wheeler most of the time we will forget the license , RC book, insurance etc. Sometimes we are caught by police if we do not have a license with us .Here in this project we are going to connect the system to the two wheeler in which the system consists of Keypad, 8 bit embedded processor, LCD, Memory, and GSM Modem. This invention relates generally to log the personal data into a vehicle System for the first time and thereby updating other credentials accordingly time to time generally to reproduce the information which is logged during required time. This system will provide the necessary information to the checking Authority in terms of number and by using that they can able to track this ID and verify the Vehicle details in quick manner. GSM modem used here to enhance authentication. Eg: Generally during Vehicle spot checking by Police we should produce License, RC book number, Insurance etc.

Key words: SPI, Microcontroller, GSM

I. INTRODUCTION

Present industry is increasingly shifting towards automation. Two principle components of today's industrial automations are programmable controllers and roots. In order to aid the tedious work and to serve the mankind, today there is a general tendency to develop an intelligent operation. Microcontroller is the heart of the device which handles all the sub devices connected across it. It has flash type reprogrammable memory. It has some peripheral devices to play this project perform. It also provides sufficient power to inbuilt peripheral devices. We need not give individually to all devices. The peripheral devices also activates as low power operation mode. These are the advantages are appear here.

Microcontrollers usually contain from several to dozens of general purpose input/output pins (GPIO). GPIO pins are software configurable to either an input or an output state. When GPIO pins are configured to an input state, they are often used to read sensors or external signals. Configured to the output state, GPIO pins can drive external devices such as LEDs or motors. Many embedded systems need to read sensors that produce analog signals. This is the purpose of the analog-to-digital converter (ADC). Since processors are built to interpret and process digital data, i.e. 1s and 0s, they are not able to do anything with the analog signals that may be sent to it by a device.

II. LITERATURE SURVEY

In et al [1] Prashantkumar two wheeler vehicle security system describes a reliable and robust design of Two Wheeler Vehicle Security System (TWVSS) with features enhancing the security of the vehicle and ensuring the safety of the rider. In this security system various new features are included in addition to the engine immobilizer and alarm. Few of the important features supported by the system are alerting owner by SMS about the theft attempt, allowing user to control the system remotely by SMS, tracking the location of vehicle using GPS technology, Remote Keyless System, servo motor operated locking system (handle lock, fuel lock and rear wheel lock) and side stand indicator. Redundancy is maintained to make the system reliable even in the worst case scenario, but due to cost constraints a tradeoff between cost and redundancy was necessary.

In et al [2] Kunal Maurya, Real Time Vehicle Tracking System using GSM and GPS Technology- An Anti-theft Tracking System demonstrates the a vehicle tracking system that works using GPS and GSM technology, which would be the cheapest source of vehicle tracking and it would work as anti-theft system. It is an embedded system which is used for tracking and positioning of any vehicle by using Global Positioning System (GPS) and Global system for mobile communication (GSM). This design will continuously monitor a moving Vehicle and report the status of the Vehicle on demand it position of the vehicle in terms of latitude and longitude in real time.

In et al [3] Karl Koscher, "Experimental Security Analysis of a Modern Automobile" This paper describes issues on a modern automobile and demonstrates the fragility of the underlying system structure. It demonstrate that an attacker who is able to infiltrate virtually any Electronic Control Unit (ECU) can leverage this ability to completely circumvent a broad array of safety-critical systems. Over a range of experiments, both in the lab and in road tests, it also demonstrate the ability to adversarial control a wide range of automotive functions and completely ignore driver input—including disabling the brakes, selectively braking individual wheels on demand, stopping the engine, and so on. It explains that it is possible to bypass rudimentary network security protections within the car, such as maliciously bridging between our car's two internal subnets. It also present composite attacks that leverage individual weaknesses, including an attack that embeds malicious code in a car's telematics unit and that will completely erase any evidence of its presence after a crash. Looking forward, we discuss the complex challenges in addressing these vulnerabilities while considering the existing automotive ecosystem.

In et al [4] Junaid Ali Implementation of GSM base commercial automobile tracker using PIC 18F452 and development of Google earth Embedded monitoring software demonstrates the vehicle tracker system using conventional GSM based communication to monitor the location of an automobile at a remote monitoring station and allow stopping the vehicle when required. The system presents the vehicle driver an option to generate an alert signal at the monitoring station using a secreted switch, when in danger.

III. PROPOSED SYSTEM

This system will provide the necessary information to the checking Authority in terms of number and by using that they can able to track this ID and verify the Vehicle details in quick manner. GSM modem used here to enhance authenticated access.
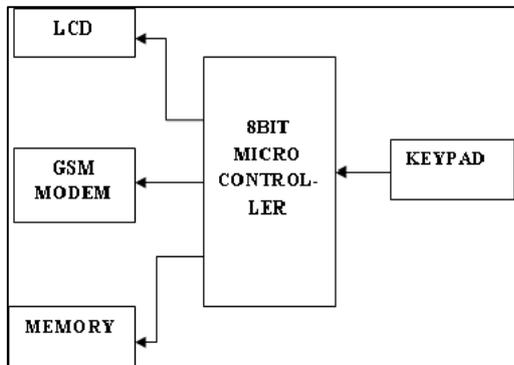
IV. BLOCK DIAGRAM

Fig. 1: Block Diagram

A. Hardware Requirements

- MICROCONTROLLER
- LCD
- GSM MODEM
- EEPROM
- KEYPAD

1) Microcontroller

Microcontroller is the heart of this system. This will control all the peripheral device (LCD,GSM) the basis of today's ubiquitous embedded systems. Microcontrollers have more peripherals on the chip. A microcontroller is a complete microprocessor system built on a single IC. Microcontrollers were developed to meet a need for microprocessors to be put into low cost products. Building a complete microprocessor system on a single chip substantially reduces the cost of building simple products, which use the microprocessor's power to implement their function, because the microprocessor is a natural way to implement many products.

This means the idea of using a microprocessor for low cost products comes up often. But the typical 8-bit microprocessor based system, such as one using a Z80 and 8085 is expensive. Both 8085 and Z80 system need some additional circuits to make a microprocessor system. Each part carries costs of money. Even though a product design may require only very simple system, the parts needed to make this system as a low cost product.

To solve this problem microprocessor system is implemented with a single chip microcontroller. This could be called microcomputer, as all the major parts are in the IC. Most frequently they are called microcontroller because they are used they are used to perform control functions. It prefers a single-chip computer. Micro suggests that the device is small, and controller tells you that the device' might be used to control objects, processes, or events. Another term to describe a microcontroller is embedded controller, because the microcontroller and its support circuits are often built into, or embedded in, the devices they control.

2) GSM Service Security

GSM was designed with a moderate level of service security. The system was designed to authenticate the subscriber using a pre-shared key & challenge-response. Communications between the subscriber and the base station can be encrypted. The development of UMTS introduces an optional Universal Subscriber Identity Module (USIM), that uses a longer authentication key to give greater security, as well as mutually authenticating the network and the user, whereas GSM only authenticates the user to the network (and not vice versa). The security model therefore offers confidentiality and authentication, but limited authorization capabilities, and no non-repudiation.

A GSM modem is a specialized type of modem which accepts a SIM card, and operates over a subscription to a mobile operator, just like a mobile phone. From the mobile operator perspective, GSM modem looks just like a mobile phone. Many of them can also be used for sending and receiving SMS and MMS messages. This will provide a complete security system to avoid the stealing.

B. Software Used

- EMBEDDED C
- CCS COMPILER
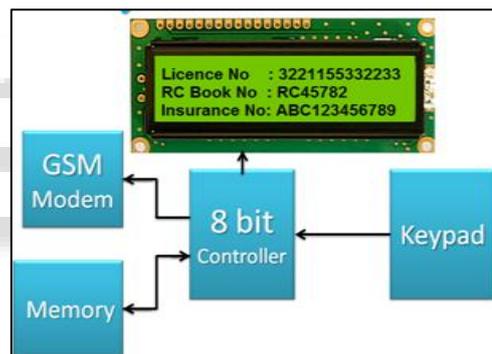- PIC PROGRAMME

V. OUTPUT

Fig. 2: Output

VI. CONCLUSION

Thus this system helps in security purpose and avoids theft. Also this system reduces the tension of the individual. It also has the benefit like if someone is taking our two wheeler it indicates us by using GSM modem. It reduces theft and also useful for the environment. In future we can use it by scanning and keep stored in the memory and show it in the display.

A. Advantages

- Used in security purpose
- Reduces tension
- No need to carry the license, RC book and insurance files every time.

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