RFID BASED AUTOMATIC VEHICLE PARKING SYSTEM

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ABSTRACT

At the very simplest level, Radio Frequency Identification (RFID) technologies allow the transmission of a unique serial number wirelessly, using radio waves. , the key driver for the development of RFID systems has been the desire to improve efficiency in globalizes supply chains but implementation of the technology has been problematic. This is partly due to the manufacturing costs of tags, which are currently too high to justify widespread deployment across supply chains in the way that was originally imagined, and partly due to concerns over the potential for infringing the privacy of consumers who purchase RFID-tagged products. Radio Frequency Identification (RFID) is a relatively old technology that has gained enormous popularity in the later years, as more and more areas of business see it as a possible technology with which to improve their existing processes. This thesis covers the designs and optimization of antenna for RFID tags at UHF and microwave frequency such design will focus on the specific characteristics of RFID application current development of RFID antenna that meet the objective size reduction advance design technique for size reduction such as mender line structure example will be discussed.

Keywords: RFID, IR Transmitter and Receiver.

I INTRODUCTION

Radio frequency identification (RFID), which was developed around World War II, provides wireless identification and tracking capability and is a technology. The purpose of an RFID system is to enable data to be transmitted by a mobile device, called a tag, which is read by an RFID reader and processed according to the needs of a particular application. The data transmitted by the tag may be used to provide identification or location information or specifies about the product tagged. This System allows easy monitoring of check-in time, check-out time, break-in time, break out time and lunch time of employees. Employees just need to have RFID tags with them they don't even need to show it to the RFID reader. It helps find who was in the office for how many hours. (RFID) is an automatic identification method, relying on storing and remotely retrieving data using devices called RFID tags or transponders. The antenna for receiving and transmitting the signal. Using RFID technology, digital data is captured

from RFID tags by a reader using radio waves. In simple terms, RFID is similar to bar code technology but uses radio waves to capture data from tags.

II LOGIC BLOCK DIAGRAM & WORKING

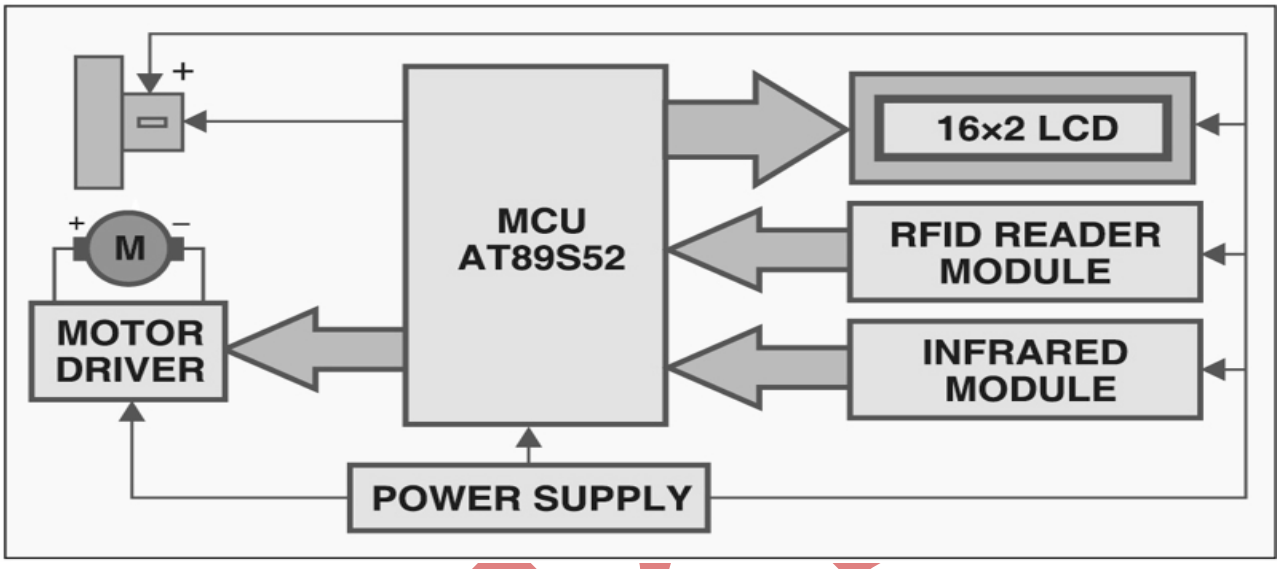

Figure 1: Logic & Block Diagram

2.1 Power supply: Connector CON1, diodes D1 through D4, capacitor C1, and voltage regulator ICs 7805 (IC1) and 7812 (IC2) form the power supply section of the automatic vehicle parking system. CON1 is a three-pin connector that provides 15V AC or DC power supply to the circuit. In case of 15V AC, diodes D1 through D4 form a bridge rectifier to rectify the AC supply. Capacitor C1 filters out the ripples from the rectified output. ICs 7805 and 7812 provide regulated +5V and +12V, respectively, to the circuit. +5V is used to operate the microcontroller, LCD, RFID and IR sensor circuit and +12V operates the motor.

2.2 89S52 Microcontroller: AT89S52 is a low-power, high-performance CMOS 8-bit microcontroller with 8kB Flash memory. It is compatible with the industry-standard 80C51 instruction set and pin-out. The on-chip Flash allows the program memory to be reprogrammed in-system or by a conventional non-volatile memory programmer. Other features include 256 bytes of RAM, 32 input/output lines, watchdog timer, two data pointers, three 16-bit timers/counters, a six-vector two-level interrupt architecture, a full-duplex serial port, on-chip oscillator and clock circuitry.

2.3 LCD display: LCD1 is a two-line, 16-character, alpha-numeric liquid crystal display. Data lines D0 through D7 of the LCD are connected to port 2 of AT89S52 (IC3). Reset (RS) and enable (E) control lines are connected to port pins P3.6 and P3.7, respectively. Control lines control data flow from the microcontroller to LCD1.

2.4 IR transmitter and receiver: Two IR transmitter-receiver pairs are used. The IR LEDs are connected in forward-biased condition to the +5V power supply through 220-ohm resistors. These emit IR light, which is interrupted when an object comes into its way to the IR receiver. The IR receiving photodiodes are connected in reverse-biased condition to +5V power supply through 1-mega-ohm resistors. When the IR light falls on the photodiodes, their resistance changes and so does their output. This output is compared with a fixed voltage to give a digital output to the microcontroller in order to judge the entry and exit of the vehicles.

III PROBLEMS & CHALLENGES

3.1 Problems Faced

RFID tags are created by gluing an integrated circuit (IC) to an inlay. This poses a problem as vibration and high temperatures will loosen the connection. If the IC loses connection with the inlay, the RFID tag will no longer transmit.

3.2 Challenges

The frequencies used for RFID in the USA are currently incompatible with those of Europe or Japan.

IV APPLICATIONS

- Car parking
- Toll plaza
- Keyless entry in universities, schools, shopping malls

V CONCLUSION

Radio frequency identification is a rapidly developing technology for automatic identification of object in this thesis we presented various antennas for passive UHF RFID tags antenna. We presented mender line antennas design for this application and analyzed various frequencies. We also presented modeling and simulation results. An S shaped antenna has a simple structure, light weight and low cost. Since it does not require a ground plane or shorting pins and is printed on a cheep substrate. For detail design parameter with a full wave EM simulator to obtain a tag that can work in the air as well as on different object.

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