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Implementation of Security Lock using RFTAG using Arduino

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ABSTRACT: RFID is a method of using Radio waves to identify and communication the data to the RF reader. If uses to the RF reader Radio wave to communication with .Active Radio Frequency Reader. We have implemented a secure entry pass using RF Reader. The RF reader uses Radio waves to tags and tells information, The RF Reader is the unique tag emitted by the radio waves the waves are act as the power to the passive RF tag. This is requirement of the secure gate steams from the fact that usual keys and paper have authentication problem is that, they can easily tampered with and can duplicated. The RFID provides a means to provide a better authentication allowing only the RFID holders to pass the lock. The RFID lock provides radio waves and the passive electrode picks the RF waves from transmitting to send its unique ID.

Keywords: Radio-frequency identification (RFID), Automatic Identification and Data Capture (AIDC)

I. INTRODUCTION

Radio-frequency identification (RFID) utilizes electromagnetic fields to naturally recognize and track labels connected to objects. The labels contain electronically put away data. Inactive labels gather vitality from an adjacent RFID peruser's grilling radio waves[1-3]. Dynamic labels have a nearby power source, (for example, a battery) and may work many meters from the RFID peruser. Not at all like a standardized identification, the label require not be inside the observable pathway of the peruser, so it might be installed in the followed question. RFID is one strategy for Automatic Identification and Data Capture (AIDC).RFID labels are utilized as a part of numerous enterprises, for instance, a RFID label connected to a car amid generation can be utilized to keep tabs on its development through the sequential construction system; RFID-labeled pharmaceuticals can be followed through stockrooms; and embedding RFID microchips in domesticated animals and pets takes into account positive ID of creatures[4]..

II. PROPOSED SYSTEM

The Atmel 8-bit AVR RISC-based microcontroller combines 32 kB ISP flash memory with read-while-write capabilities, 1 kB EEPROM, 2 kB SRAM, 23 general purpose I/O lines, 32 general purpose working registers, three flexible timer/counters with compare modes, internal and external interrupts, serial programmable USART, a byte-oriented 2-wire serial interface, SPI serial port, 6-channel 10-bit A/D converter (8-channels in TQFP and QFN/MLF packages), programmable watchdog timer with internal oscillator, and five software selectable power saving modes. The device operates between 1.8-5.5 volts. The device achieves throughput approaching 1 MIPS per MHz.

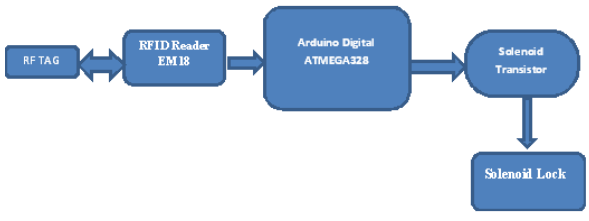

Fig:1 Proposed Block Diagram

The lock is initially in open state.To open the lock the RF Tag is brought near the reader .After the reader senses the tag The lock is opened.After required work,The lock is closed is by bring RF Tag near the Reader shown in fig1.

III. RFID Reader EM18

Radio frequency Identification (RFID) is a wireless identification technology that uses radio waves to identify the presence of RFID tags.Just like Bar code reader, RFID technology is used for identification of people, object etc. presence.In barcode technology, we need to optically scan the barcode by keeping it in front of reader, whereas in RFID technology we just need to bring RFID tags in range of readers. Also, barcodes can get damaged or unreadable, which is not in the case for most of the RFID.RFID is used in many applications like attendance system in which every person will have their separate RFID tag which will help identify person and their attendance.RFID is used in many companies to provide access to their authorized employees.It is also helpful to keep track of goods and in automated toll collection system on highway by embedding Tag (having unique ID) on them.

Solenoid Lock

Electric solenoids work on similar electromagnetic principles to those of DC motors, however, solenoids can use the magnetic energy to push or pull something rather than turn it. Solenoids are found in paintball guns, pinball machines, printers, valves and even automobiles.A Solenoid is a coil that when energised, produces a controlled magnetic field down through its centre. By placing a magnetic armature inside that field, the armature can move in or out of the coil. The solenoid's strength (the force it can push or pull) is directly proportional to windings of the coil and the current applied. This means that more coils equal greater magnetic fields and greater force. A small design specification for this type of coil is that it must be longer than it is wide, ensuring the magnetic field runs through the centre and allows the in/out movement discussed above.

IV. CONCLUSION

The RF Tag Security lock is being implemented by Arduino, The security of a lock is improved with authentication by means of an arduino.The is prevents the user from tampering the security pass or duplication.The RFID provides cost effective improvent over increasing the security.

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