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Attribute Based Privacy Preserving Task Assignment and Incentive Mechanism for Crowdsensing

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ABSTRACT: This project proposes a secured ATM (Automated Teller Machine) system using a card scanning system along with LINK system for improved security. Usual ATM systems do not contain the LINK feature for money withdrawal. If an attacker manages to get hold of ATM card and the pin number, he may easily use it to withdraw money fraudulent. So our proposed system supports the ATM card scanning system along with an LINK system. This user may scan his card and login to the system. But after user is through with this authentication he may view details but is asked to enter LINK as soon as he clicks money withdrawal option. At this stage the system generates and sends an LINK to the registered mobile number to that particular user. The password is generated and sent to the user mobile phone. He now needs to enter the LINK in the system in order to withdraw money. Thus our system provides a totally secure way to perform ATM transactions with two level security structure.

KEYWORDS: Arduino UNO Microcontroller, 16x2 LCD, Keil c51 c Compilers, IC Voltage Regulators.

I.INTRODUCTION

An embedded system is some combination of computer hardware and software, either fixed in capability or programmable, that is designed for a specific function or for specific functions within a larger system. Industrial machines, agricultural and process industry devices, automobiles, medical equipment, cameras, household appliances, airplanes, vending machines and toys as well as mobile devices are all possible locations for an embedded system. Embedded systems are computing systems, but can range from having no user interface (UI) for example, on devices in which the embedded system is designed to perform a single task to complex graphical user interfaces (GUI), such as in mobile devices. User interfaces can include buttons, LEDs, touchscreen sensing and more. Some systems use remote user interfaces as well. Embedded systems can be microprocessor or microcontroller based. In either case, there is an integrated circuit (IC) at the heart of the product that is generally designed to carry out computation for real-time operations. Microprocessors are visually indistinguishable from microcontrollers, but whereas the microprocessor only implements a central processing unit (CPU) and thus requires the addition of other components such as memory chips, microcontrollers are designed as self-contained systems.

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II.EXISTING SYSTEM

The existing ATM Simulation System was built for the original concept of regional private banks. Small banks in villages and towns will service the needs of the local community and will only require ledgers to record account details. This system is prone to human error and causes undue frustration to users. This system was augmented with the introduction of excel sheets and emails. Banks could now record all information in an excel sheet and then set an update schedule when they will mail all records to a central hub where these records will again be processed and consolidated to form a unified record of all account transactions. These systems did not enable easy access to money and were greatly prone to grievous errors..

III.PROPOSED SYSTEM

The proposed system aims to solve all this by constant updating of bank records. The Java based construction of the system will enable transactions at any bank or ATM to be registered within a matter of seconds. Security of these details is also a top priority in this system. This central hub will be accessed by an ATM for secure customer transactions. In our project we are going to place an extra button in ATM machines. When that button got pressed the control window will be telecasted to accountant cellular phone. Then the accountant can enter the pin and amount manually in his mobiles telecasted pop-up window. By this control system accountant can keep his pin number with him and he can vend the amount by his own control by the desired person. As assembly language programs are specific to a processor, assembly language didn’t offer portability across systems. To overcome this disadvantage, several high level languages, including C, came up. Embedded systems programming is different from developing applications on a desktop computers.

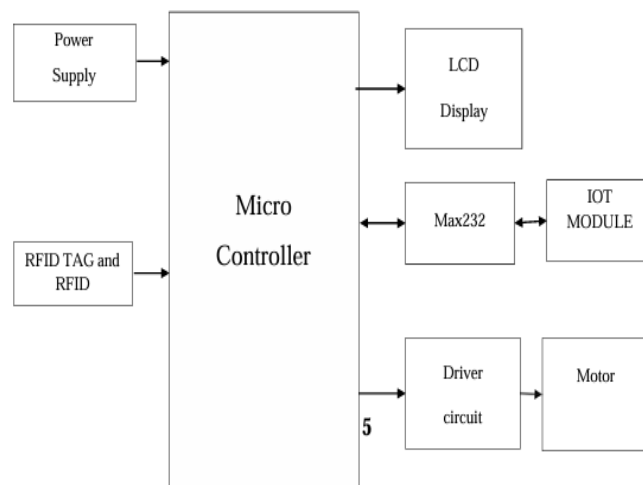


Figure.1. Block Diagram of Proposed System

ARDUINO UNO R3 MICROCONTROLLER

The Arduino Uno R3 is a microcontroller board based on the ATmega328. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with AC-to-DC adapter or battery to get started. The Uno differs from all preceding boards in that it does not use the FTDI USB-to-serial driver chip. Instead, it features the Atmega16U2(Atmega8U2 up to version R2) programmed as a USB-to-serial converter. Revision 2 of the Uno board (A000046) has a resistor pulling the 8U2 HWB line to ground, making it easier to put into DFU mode.

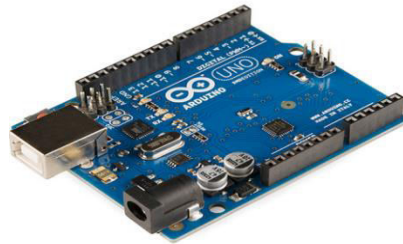


Figure.2.Microcontroller

16x2 LCD

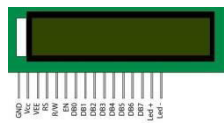


Figure.3.16x2LCD

A 16x2 LCD means it can display 16 characters per line and there are 2 such lines. In this LCD each character is displayed in 5x7 pixel matrix. This LCD has two registers, namely, Command and Data. The command register stores the command instructions given to the LCD. Voltage regulators comprise a class of widely used ICs. Regulator IC units contain the circuitry for reference source, comparator amplifier, control device, and overload protection all in a single IC. IC units provide regulation of either a fixed positive voltage, a fixed negative voltage, or an adjustably set voltage. The regulators can be selected for operation with load currents from hundreds of milli amperes to tens of amperes, corresponding to power ratings from milli watts to tens of watts.

IV.HARDWARE RESULTS

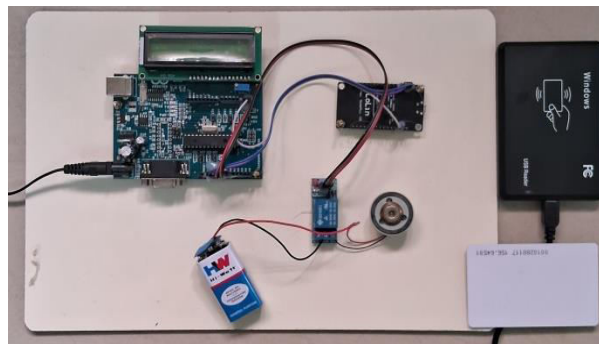


Figure.4. Hardware Results

This whole implementation ensures us a secured and authenticated transaction through RFID and GSM technique with lowest cost and minimum maintenance. Mankind will utilize new and secured type of money transactions. The only thing is that initial cost of RFID conversion of the entire system is the required one time investment. The value added service that this system provides increases the credibility of the financial institutions, the banks improves the convenience to its customer. Hence as the world progresses through the inevitable and an indomitable quest for knowledge, the aspect of security bound systems are bound to concede with the growing innovations and obviously more vulnerabilities. Hence our application might well solve the aspect of transaction security to a precise and great extent.

V.CONCLUSION

Overall the project represents a significant advancement in the field, offering a comprehensive solution to address key challenges and enhance the overall effectiveness of crowdsensing platforms. Through the integration of attribute-based



privacy-preserving techniques, dynamic task assignment algorithms, and personalized incentive mechanisms. Overall, the attribute-based privacy-preserving task assignment and incentive mechanism proposed for crowdsensing offer a holistic approach to address the complex challenges faced by existing systems. By combining state-of-the-art techniques with innovative algorithms and incentive structures, the proposed system lays the foundation for the development of a robust, secure, and participant-centric crowdsensing framework capable of unlocking new opportunities for collaborative data collection and analysis across various domains.

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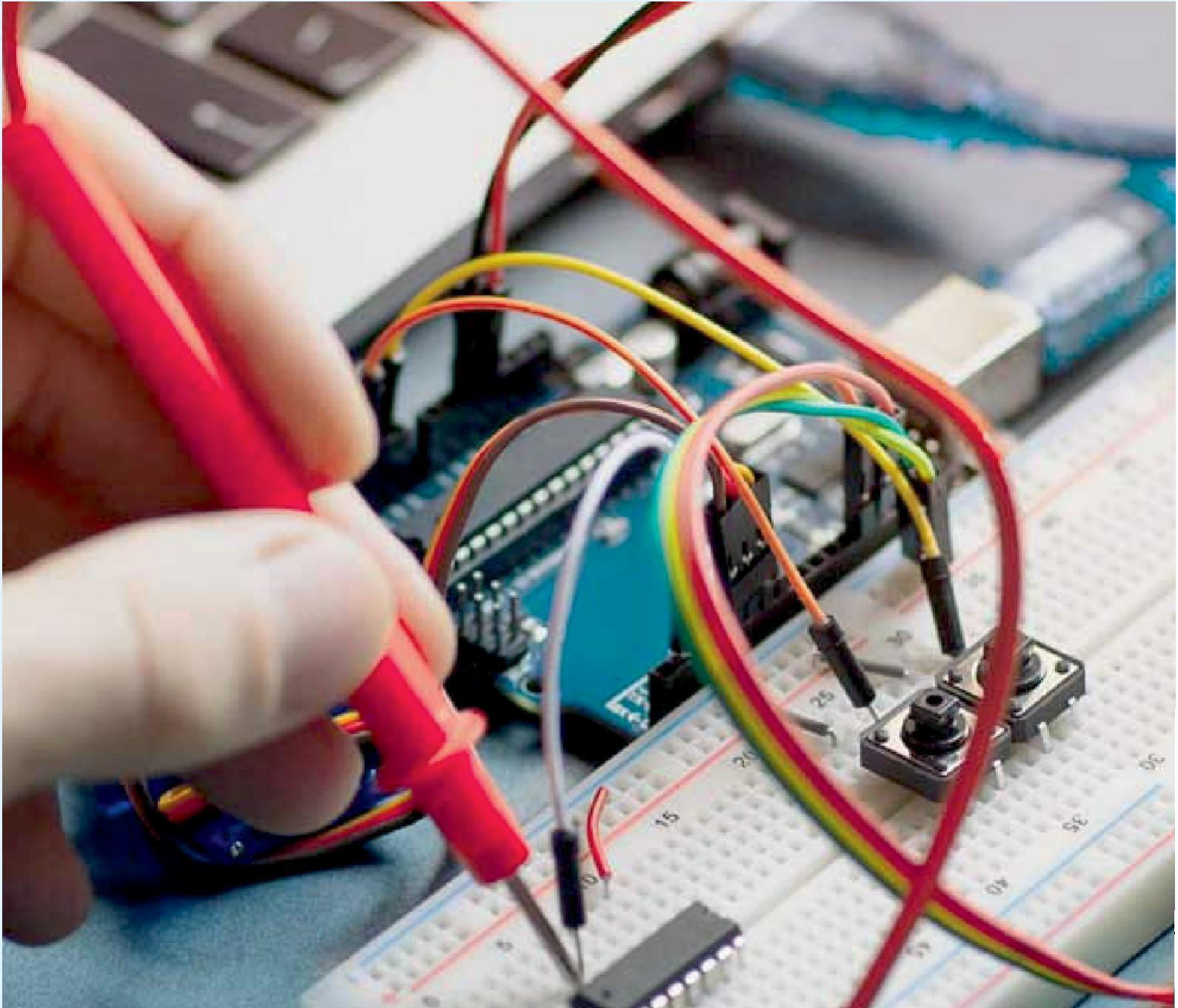
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