Electronic Unique Identification Device (UID)

Kiran R. Barapatre, Mayur B. Petkar, Rahul B. Lanjewar
Asst. Professor, Department of Electronics Engineering
RTMNU, Nagpur, Maharashtra, India

Abstract— Electronic identification (UID) cards promise to supply a universal, nation-wide mechanism for user authentication. We use this UID paper as a showcase to discuss UID from an application perspective. The new ID card has interesting design features: it aims to protect people's privacy to the extent possible, and it supports cryptographically strong mutual authentication between users and services. The UID system's database is built by collecting data from different existing databases distributed all over the country, combining and storing it in one centralized UID system database helping to develop a card which can be centrally issued and used everywhere.

Keywords— UID, AVR STUDIO-V4, Micro SD card, Cryptography.

I. INTRODUCTION

The purpose of a Unique Identification System is that it avails a Unique Identity Number to the citizen of a country giving them the advantage of not submitting multiple documents to avail the services residents would no longer need to go to various government departments and prove their identity each time. This scheme is designed to leverage intensive usage of the UID for multipurpose to provide an efficient and convenient mechanism to update information. The unique ID will require creation of a database that links an individual to unique identifier formed, based on a format code that remains constant over his life-span, like parentage, date and place of birth and automatically gets activated just like a voter ID card. The UID database is built by collecting data, storing and linking the existing Identity databases (voter ID, passports, ration cards, licenses, fishing permits, border area ID cards) into one centralized database from which the information can be accessed. The UID Authority will be responsible for creating and maintaining the core database and to lay down all necessary procedures for issuance and usage of UID including arrangements for collection, validation and authentication of information, proper security of data, rules for sharing and access to information, safeguards to ensure adequate protection of privacy. The user is highly inconvenienced as he is required to change over the cards frequently, so we have designed a card which combines information contained in a variety of various passwords.[1]

II. REVIEW OF LITERATURE

Unique Identification System is a system in which every citizen of a country will have a Unique Identification Number which would not just help the government to track down individuals, but would make life far easier for citizens as they would not have to submit multiple documents each time they want to avail a new service—public private, government., regulatory authority or law-enforcement agency.[2]The security of the UID database system will be handled by the Password which will be entered by the user. The UID system's database is built by collecting data from different existing databases distributed all over the country, combining and storing it in one centralized UID system database helping to develop a card which can be centrally issued and used everywhere. This document tells us about the benefits and capabilities that will be provided to the identification system. It also states the various requirements, specifications, advantages and constraints that the system should abide by.

UID system helps in managing a single number for every person needs in his/her life span i.e. the number is used as Driving license number, Voter ID card number, registration number in any organization, bank account number, personal or professional details. Security mechanism in UID one wonders - if there is no physical Identity card or electronic smart card, then how will UID validate its citizens. For implementing this, two different processes have to followed, the first one being the recording process and the second one - the authentication process. The UID is fundamentally prepared to identify citizens so that better security can be provided by identifying illegal immigrants and terrorists. The role the system envisions is to issue a unique identification number (UID) that can be verified and authenticated in an online, cost-effective manner, and that is robust enough to eliminate duplicate and fake identities.

The purpose of a Unique Identification System is that it avails a Unique Identity Number to the citizen of a country giving them the advantage of not submitting multiple documents to avail the services residents would no longer need to go to various government departments and prove their identity each time. This scheme is designed to leverage intensive usage of the UID for multipurpose to provide an efficient and convenient mechanism to update information. Electronic identity (e-ID) cards promise to supply a universal, nation-wide mechanism for user authentication. We use this e-ID

paper as a showcase to discuss e-ID from an application perspective. The new ID card has interesting design features: it is contactless, it aims to protect people's privacy to the extent possible, and it supports cryptographically strong mutual authentication between users and services.

III.   BLOCK DIAGRAM

According to the methodology used, the microcontroller ATMEGA16 is the heart of our paper. According to its features it has 4 port and we can use them according to our need I/P as well as O/P. So we use port B, port C and port D as O/P port and port A is I/P port. The keyboard is interface on port A for the purpose of entering password. The LCD display is interface on the port B for detecting correct password and the relay and is connected on the port D for making & breaking the contact of micro SD card the relay is connected through voltage limiter & current amplifier block as shown in block diagram.

IV.   CIRCUIT DIAGRAM
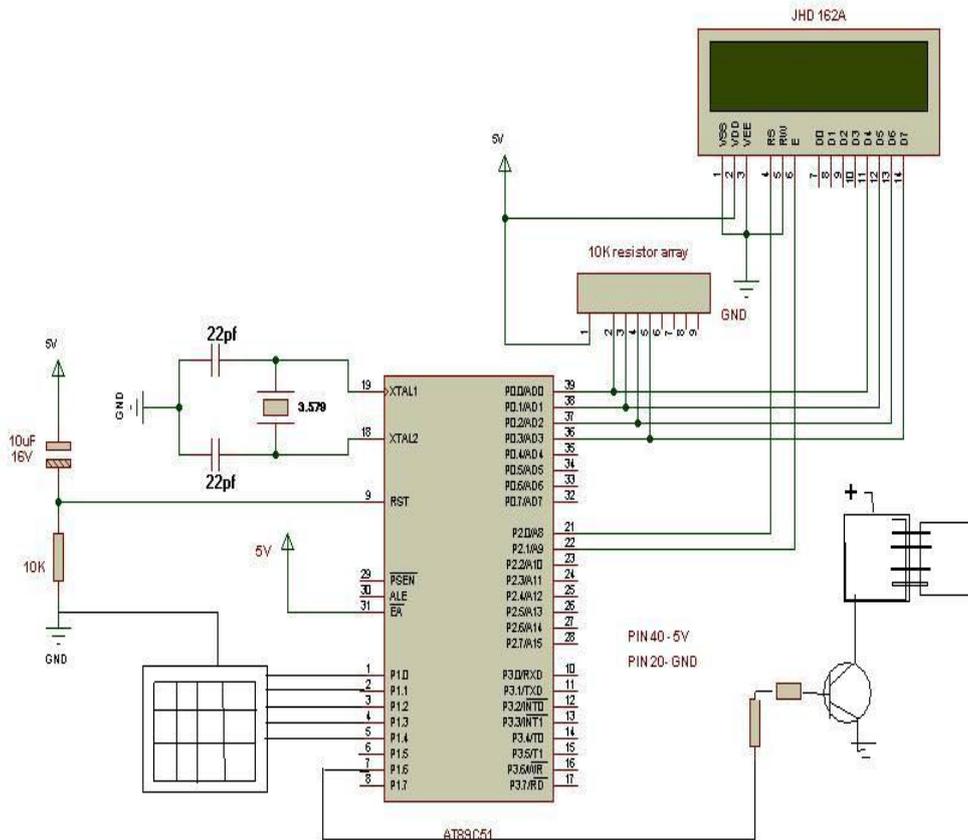
The microcontroller ATMEGA16 is the heart of this idea. It is a 40 pin IC and has an 8-bit high performance microcontroller of Atmel's Mega AVR family with low power consumption. This microcontroller has 4 ports port a, port B, port C, and port D where all the 4 ports can be used either input or output port.

 In this port A is used for keyboard interfacing (i.e.) from pin no. 33 to 40 the keyboard used is the 4*4 matrix keyboard. Port B is used for LCD interfacing (i.e.) from pin no. 1 to 8 LCD used here is the 16*2 which means it has 16 columns and 2 rows .Pin no. 14 of port D is used to connect SD-CARD to the microcontroller and port C is not used.[3].

 Initially when the supply is given to pin no. 10 and 30 of microcontroller all the pins get enable and the ports become activated and the interfacing of keyboard, LCD and SD-CARD takes place. The LCD get initialize first and the unique identification number of that particular device will be flashed on the LCD screen first then the message "ENTER YOUR PASSWORD" will flash, then the user will enter the password through the keyboard. If the password entered is correct then the microcontroller will give the text "PASSWORD CORRECT" and if not then it will show "PASSWORD INCORRECT".

After the correct password is detected by the microcontroller the SD-CARD get connected with the compute. In between SD-CARD and microcontroller 2 SPDT (single pole double throw) relays are connected which acts as a switch between them. SD-CARD works on 3.3V TTL logic while the microcontroller works on logic level of 5V CMOS level standard, so they cannot be connected directly .If we directly connect the SD-CARD either microcontroller it will surely get damage. Hence to avoid this we connect an amplifying circuit between them, here the L293D IC is used for amplifying the voltage means it is used as a voltage regulator IC. When the control signal on pin no. 14 0f microcontroller goes high the relay get energize and the SD-CARD is activated and get connected with the computer where the data or the information of that device holder can be viewed on the computer.

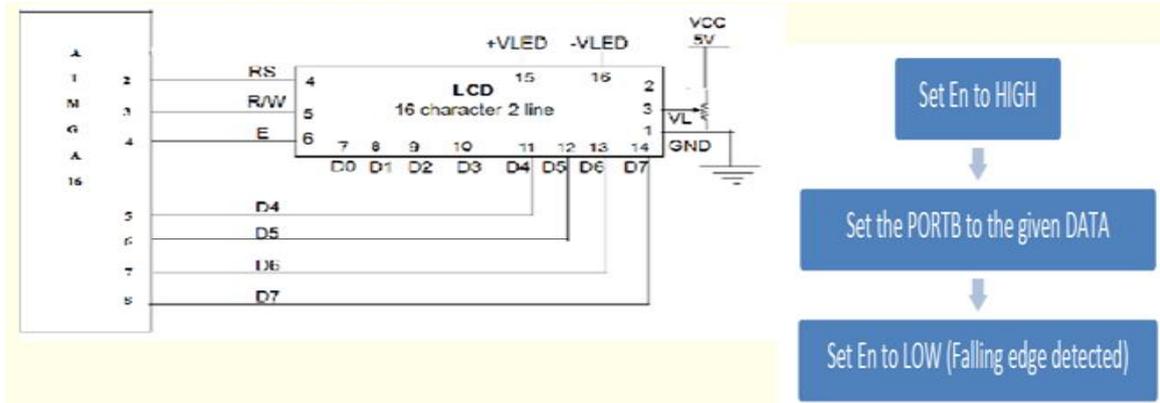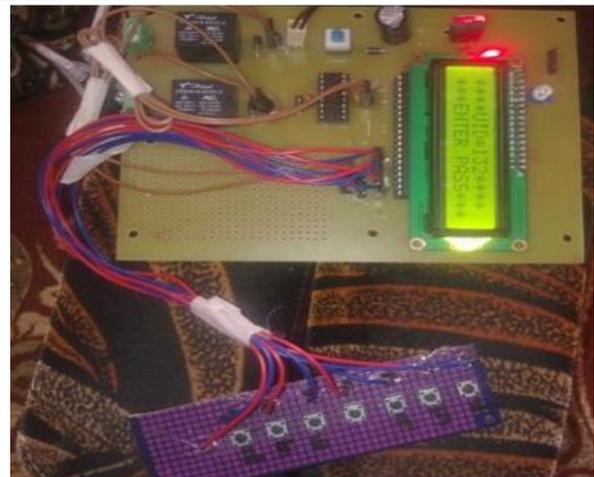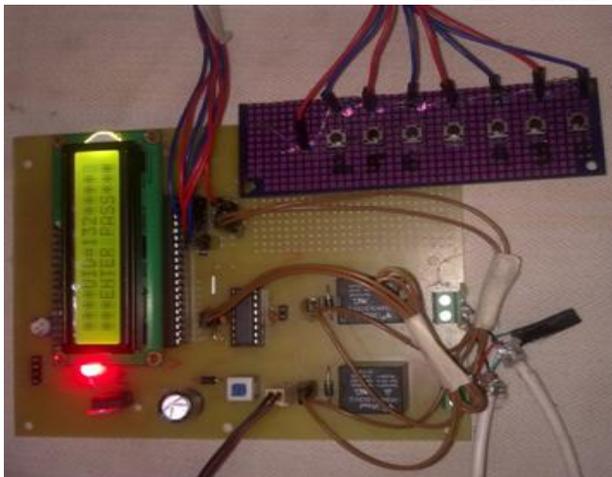## V.   FLOWCHART
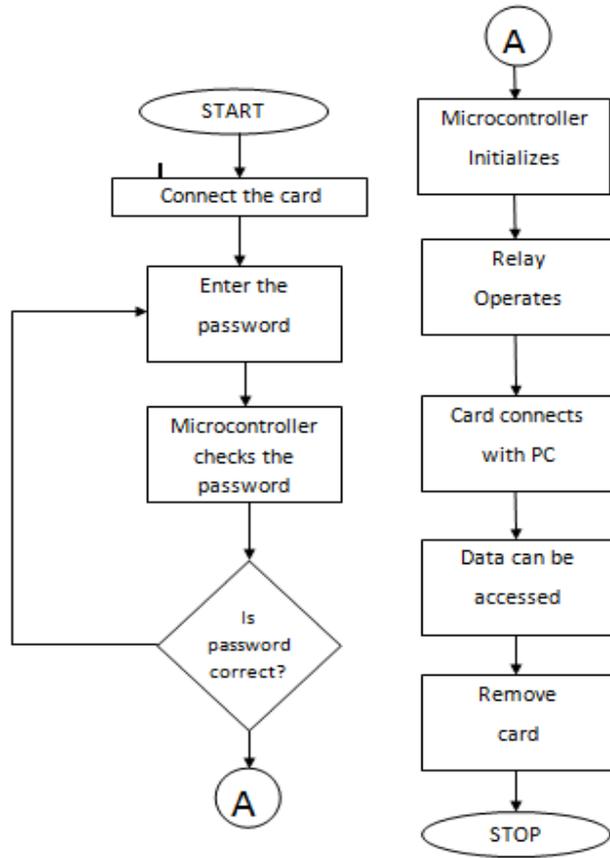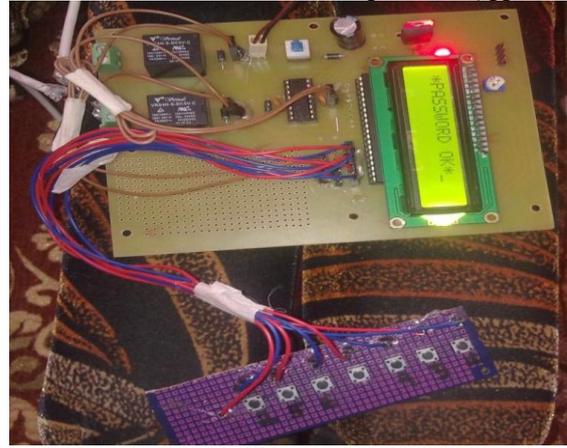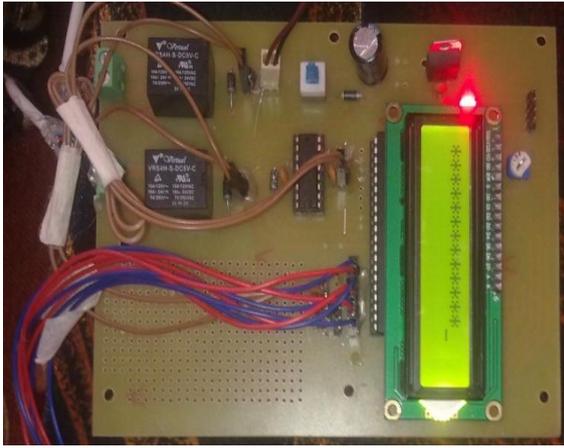

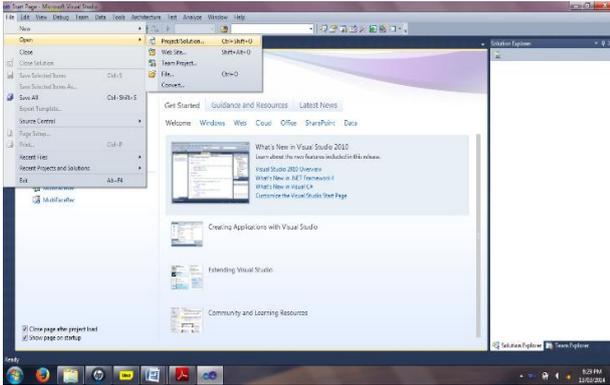## VI.   INTERFACING OF LCD WITH ATMEGA 16

Fig: Interfacing of LCD with Atmega16

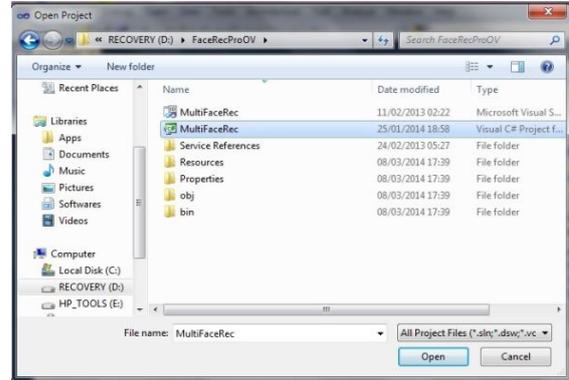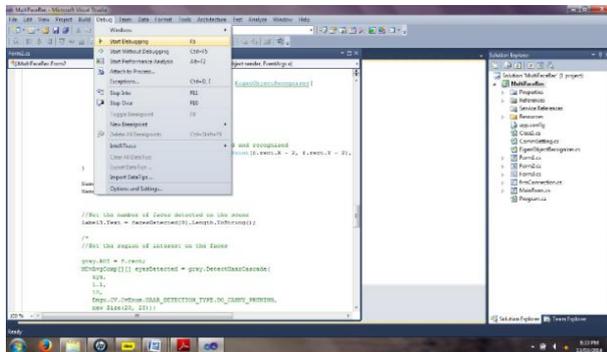## VII.   HARDWARE RESULTS
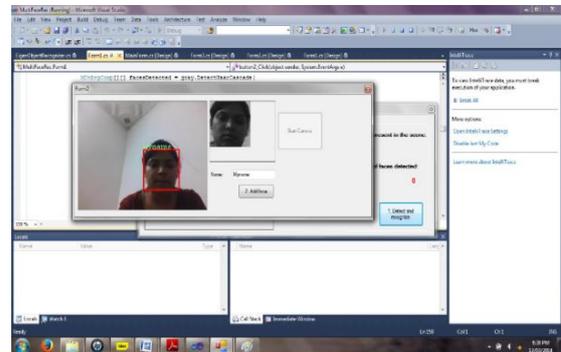
VIII. SOFTWARE RESULTS

Step 1: Database image 1

Step 2: Database image 2

Step 3: Database image 3

Step 4: Database image 4

IX. SUMMARY

1. In this paper the electronic device is designed. Electronic identity device promise to supply a universal, nation-wide mechanism for user authentication.

2. This card contains the basic information of the particular individual such as photograph, documental data of that person and specific data. This are added to make the identification and authentication full proof.

3. The purpose of Unique Identification System is that it avails a Unique Identity Number to the citizen of a country giving them the advantage of not submitting multiple documents. This scheme is designed to leverage intensive usage of the UID for multipurpose to provide an efficient and convenient mechanism to update information. The UID database is built by collecting data, storing and linking the existing Identity databases into one centralized database from which the information can be accessed.

4. Microcontroller ATMEGA16 is used. The   includes the interfacing of micro SD card, key board, LCD with microcontroller unit. Programming is done using "Embedded C" written in "AVR studios" software.

5. It aims to protect people's privacy to the extent possible, and it supports strong mutual authentication between users and services

X. CONCLUSION

Unique Identification System will be beneficiary to the citizens as it is a unique number which contains basic information of every person. After the ID will be issued there is no need to carry driving license, voter cards, pan card, etc for any govt. or private work. For example, for opening a new account one has to show his/her Unique ID only. But to some

extent it is harmful to the general public as all the data related to them is stored on computers and can be misused by hackers if the multiple security strategies will not be adopted.

The UID authority in specific should make sure that we have the highest standards of integrity, openness, transparency and process in all stages of UID System. Implementing and maintaining the UID system will generate high costs along with risks to safety, security, privacy, freedom, and liberty. The UID paper should not become compulsory until there is an established judicial overview to ensure that the privacy rights of citizens are not unlawfully violated. The role the system envisions is to issue a unique identification number (UID) that can be verified and authenticated in an online, cost-effective manner, and that is robust enough to eliminate duplicate and fake identities.

REFERENCES

[1]   ALANKRITI PATNAIK; "UNIQUE IDENTIFICATION SYSTEM"; International journal of computer application (0975-8887) volume 7- no5
[2]   "National ID card paper", India times Infotech, 1 july 2009
[3]   MD. AMER;"ALPHANUMERIC KEYPAD USING ATMEGA16 MICROCONTROLLER"; Department of electronics engineering and technology (A.P.) march 2011