PROJECT REPORT

On

"DIGITAL SECURITY CONTROL SYSTEM"

By

Anushka Rane 19103A0025

Shruti Biyani 19103A0082

Rithika Kotur 19103A0084

Dhanashree Kamble 19103A0054

UNDER THE GUIDANCE OF

Prof. Sheetal Patil

Submitted in partial fulfillment for the degree ofBachelor of Engineering

In Electronics

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DEPARTMENT OF ELECTRONICS ENGINEERING
VIDYALANKAR INSTITUTE OF TECHNOLOGY WADALA (E), MUMBAI-400 037.

CERTIFICATE OF APPROVAL
For Project Synopsis
This is to certify that

Sr. No.	Roll Number
1.	Anushka Rane 19103A0025
2.	Dhanashree Kamble 19103A0054
3.	Shruti Biyani 19103A0082
4.	Rithika Kotur 19103A0084

Have successfully carried out Project work titled

"**DIGITAL SECURITY CONTROL SYSTEM**"

in Department of Electronics
As laid down by University of Mumbai during the academic year2021-22

Under the Guidance of

Prof. Sheetal Patil

Signature

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ABSTRACT

The need for home security alarm systems nowadays is a serious demand. As the number of crimes is increasing every day, there must be something that will keep us safe. The old lock and key system have many drawbacks as one may misplace the key, or the key might be stolen. This can lead to intruders getting access to your homes or offices. Normal locks are also easier to break and thus increase the risk of theft. With the increase in crime rates and thefts it has become especially important to have an innovative approach to security using newer technology.

In workplaces or places like schools or colleges sometimes unauthorized people can enter during rush hours due to failure in security at the gate. To avoid this a device is necessary which will allow or give access to only those who are allowed to enter. This device will be extremely useful in offices, schools, colleges, private institutions and even housing societies as it will only allow people who have the access code in. This will also help reduce human efforts and errors.

INTRODUCTION

Security is a vital concern around the world, and it has been a major thread for all confidential departments. The need for digital security control systems nowadays is a serious demand. As the number of crimes is increasing every day, there must be something that will keep us safe. The old lock and key system have many drawbacks as one may misplace the key, or the key might be stolen. This can lead to intruders getting access to your homes or offices. Normal locks are also easier to break and thus increase the risk of theft. With the increase in crime rates and thefts it has become especially important to have an innovative approach to security using newer technology.

Our project is a microcontroller based digital lock system that offers authorized personnel the chance to enter a restricted area. This device will help to increase security by denying unauthorized people from entering into a specific area. An individual gets a choice about whom to give access to. Reduces thefts as well.

Automatic identification and access control system has become necessary to overcome the security threats faced by many organizations in India these days. Installing the system at the entrance will only allow authorized persons to enter the organization. This system can also be installed at various points inside the organization to track the person's movement and restrict their access to sensitive areas in the organization. In such a way, suspicious persons can be caught red-handed which will surely improve the security level in the organization.

REVIEW OF LITERATURE

As technology keeps advancing, old systems become outdated and easy to break. One such system is an old lock and key system. Over the years the number of thefts, intrusions and break-ins have increased. The need for tighter security has become very necessary. In the past 5 years the number of crimes has increased exponentially and the need for security systems has grown. From housing societies, schools, universities to big corporations the need for digital security systems has increased. In workplaces or places like schools or colleges sometimes unauthorized people can enter during rush hours due to failure in security at the gate.

To avoid this, a device is necessary which will allow or give access to only those who are allowed to enter. This device will be extremely useful in offices, schools, colleges, private institutions and even housing societies as it will only allow people who have the access code in. This will also help reduce human efforts and errors.

The need for digital security control systems nowadays is a serious demand. As the number of crimes is increasing every day, there must be something that will keep us safe. The old lock and key system have many drawbacks as one may misplace the key, or the key might be stolen. This can lead to intruders getting access to your homes or offices. Normal locks are also easier to break and thus increase the risk of theft. With the increase in crime rates and thefts it has become especially important to have an innovative approach to security using newer technology.

OBJECTIVE

The main objective of our project is to make a device that stops any unwanted access and gives additional security to an organization.
The system allows the user to change the passcode whenever they wish to which adds to the security feature.

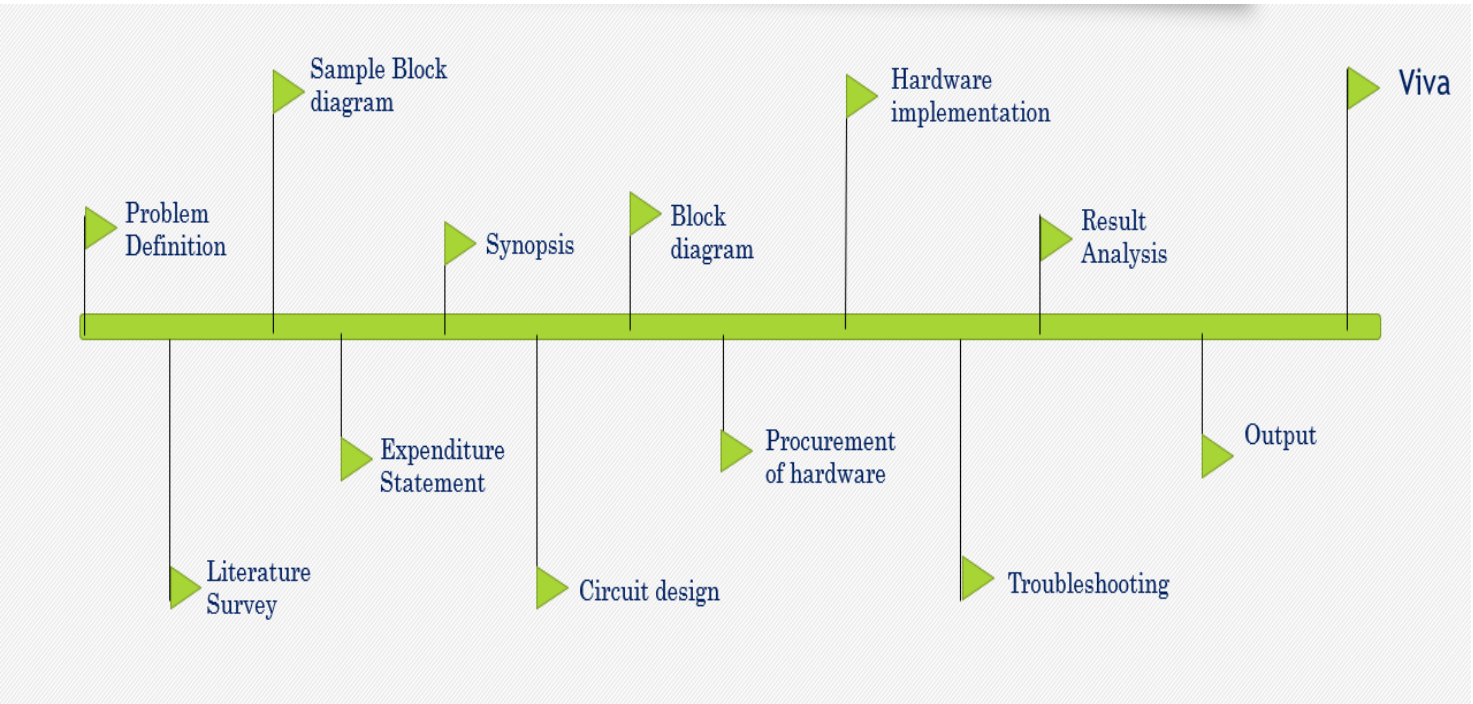
PROPOSED METHODOLOGY

This is a device that will provide an output once an accurate access code has been entered. This device is a PIC (Peripheral interface control) based device which activates when the correct passcode is entered. This passcode is a 4-digit passcode that consists of numbers 0 to 9. The code can be changed by the user whenever necessary and is also remembered by the device when the power is off.

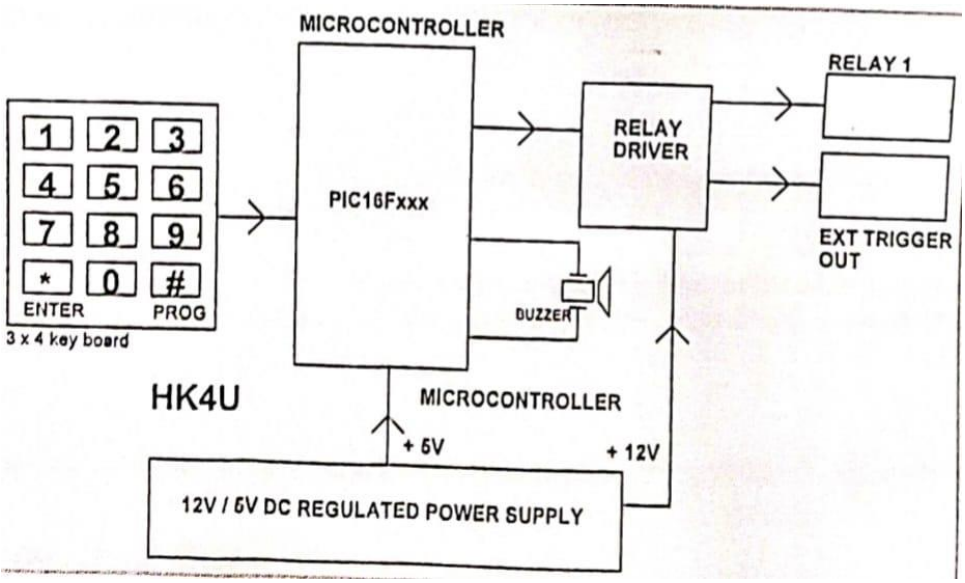
A buzzer has been added to provide the input feedback; the number of beeps indicates whether the input has been entered correctly or not. The beeps will indicate to the user whether the password he/she entered is correct or not. This circuit is eminently suitable as an electronic door lock. This unit has 2 outputs. Ones of these provides a TTL signal, which normally is 'low' and becomes 'high' after being activated. The other output consists of a relay.

The output will pe active for about 10 seconds after entering the code. If the entered passcode is correct the buzzer sounds a single beep, while if the passcode entered is wrong the buzzer sounds 3 beeps. It also has an alarm mode where if a wrong code has been entered more than 4 times all the key presses are ignored, and the buzzer sounds an alarm.

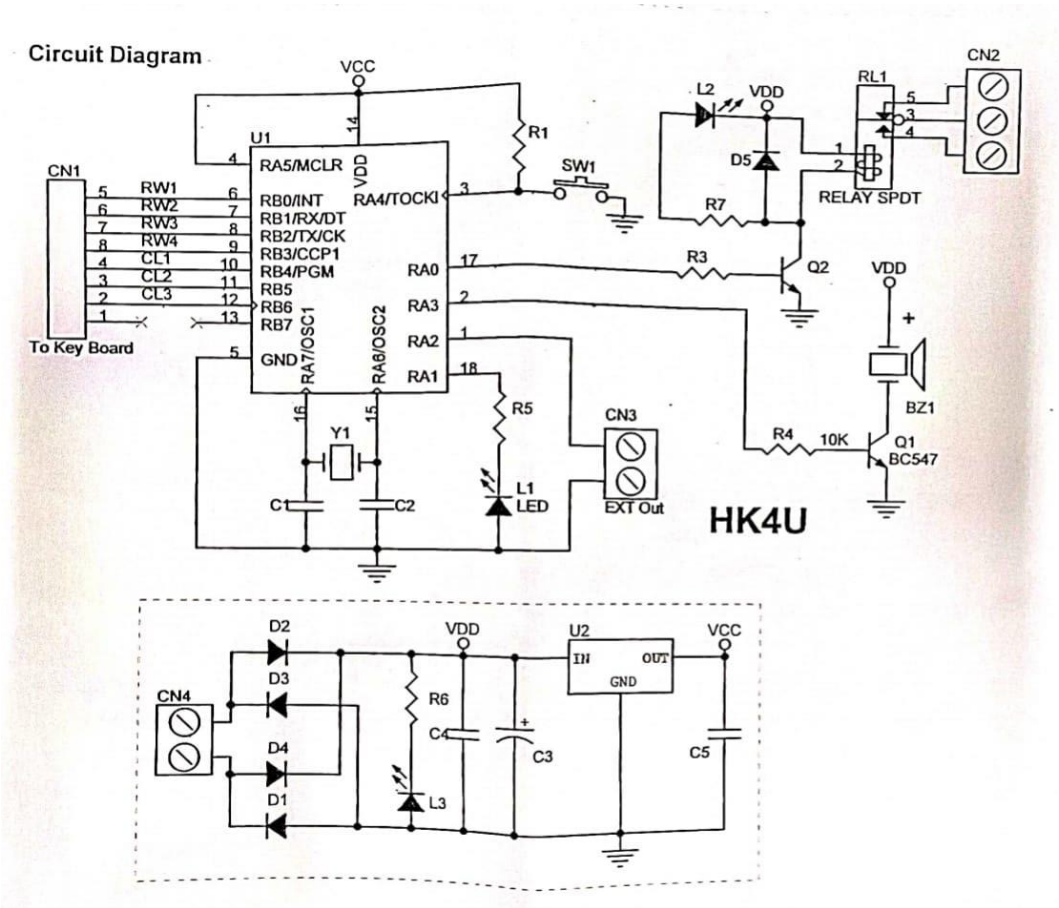
PROCESS FLOW DIAGRAM



BLOCK DIAGRAM



CIRCUIT DIAGRAM



COMPONENTS USED

- **Resistors**
- **Capacitors**
- **Crystal Oscillator**
- **PCB**
- **Wires**
- **LED**
- **Transformer**
- **Microcontroller**
- **Voltage Regulator IC**
- **Transistor**
- **Relay**
- **Push On Switches**
- **Power Supply**
- **Buzzer**

OUTPUT

APPLICATIONS AND FUTURE SCOPE

- **This project provides security.**
- **Power consumption is less.**
- **Used commonly available components.**
- **Project is simple and easy.**
- **Access control systems are easy to manage.**
- **Forget the hassle associated with traditional keys.**
- **Set specific access dates and times.**
- **Require mandatory credentials for access.**
- **Keep a record of people entering the premises.**
- **Improved Security that works for you.**

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CONCLUSION

All around the world, thefts and robberies are quite a common phenomenon as analog lock and key systems are easy to break. This system will not only help in avoiding thefts and robberies but will also allow individuals to give access to only certain people, hence the chances of unauthorized people entering also reduces. The risk of losing a key or forgetting to take one also reduces as you only need to remember the passcode. This device will not only reduce human effort and human errors but will be great to increase security to stop thefts and unauthorized access.

ACKNOWLEDGEMENT

We wish to express our deep sense of gratitude to thank our project guide Prof. Sheetal Patil for providing timely assistance to our query and guidance. We would also like to thank the entire faculty of ETRX Department for their valuable ideas and timely assistance with this project. Last but not least, we would also like to thank the teaching and non-teaching staff members of our college for their support.

REFERENCE

Digital Door Lock-Password Security Code Lock using 8051 (circuitstoday.com)

file://C:\Documents%20and%20Settings\ch236\My%20Documents\ECE%2 (cornell.edu)

Password Door Lock Security System using Arduino and Keypad (electroniclinic.com)