Jawaharlal Nehru Technological University Hyderabad
College of Engineering Sultanpur

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Department of Electronics and Communication Engineering

CERTIFICATE

Date:

*This is to certify that the mini project work entitled "**DIGITAL CODE LOCK USING ARDUINO"** is a bonafide work carried out by **CH.SUMANTH, M.SOUJANYA, S.MAHITHA bearing** Roll No.**13SS1A0410, 13SS1A0434, 14SS5A0404** in partial fulfillment of the requirements for the degree of **BACHELOR OF TECHNOLOGY** in **ELECTRONICS & COMMUNICATION ENGINEERING** by the Jawaharlal Nehru Technological University, Hyderabad during the academic year 2016-2017.*

The results embodied in this report have not been submitted to any other University or Institution for the award of any degree.

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B. Prabhakar	**B. Prabhakar**
Associate Professor	**Associate Professor**
Project Guide	**HOD – ECE Department**

DECLARATION

We do declare that the project work entitled **"DIGITAL CODE LOCK USING ARDUINO"** submitted by us in the Department of Electronics and Communication Engineering, JNTUH College of Engineering, Sultanpur in partial fulfillment of degree for the award of Bachelor of Technology in Electronics and Communication Engineering is a bonafide work, which was carried out under the supervision of B. Prabhakar, Associate Professor and Head, Department of ECE, JNTUHCES.

Also, we declare that the matter embedded in this thesis has not been submitted by us in full or partial thereof for the award of any degree of any other University or Institution previously.

Place: Signature of the Students

Date: (CH.SUMANTH)

(M.SOUJANYA)

(S.MAHITHA)

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ABSTRACT

Security is a major concern in our day to day life, and digital locks have become an important part of these security systems. One such digital code lock is imitated in this project using arduino board and a matrix keypad. In this circuit we have used multiplexing technique to interface keypad for input the password in the system. Here we are using 4x4 keypad which contains 16 key. If we want to use 16 keys then we need 16 pin for connection to arduino but in multiplexing technique we need to use only 8 pin for interfacing 16 keys. So that it is a smart way to interface a keypad module.

Multiplexing technique is a very efficient way to reduce number of pins used with the microcontroller for providing input or password or numbers. Basically this technique is used in two ways - one is row scanning and other one is colon scanning. But in this arduino based project we have used keypad library so we do not need to make any multiplexing code for this system. We only need to use keypad library for providing input.

Circuit of this project is very simple which contains Arduino, keypad module, buzzer and LCD. Arduino controls the complete processes like taking password form keypad module, comparing passwords, driving buzzer and sending status to LCD display. Keypad is used for taking password. Buzzer is used for indications and LCD is used for displaying status or messages on it. Buzzer is driven by using a NPN transistor.

We have used inbuilt arduino's EEPROM to save password, so when we run this circuit first time program read a garbage data from inbuilt arduino's EEPROM and compare it with input password and give a message on LCD that is Access Denied because password does not match. For solving this problem we need to set a default password for the first time by using programming.