ABSTRACT-
In this current situation, the degree of security is feeble. So there is a lot of robbery, theft going on in and around the world. So, people fear to keep any of their valuables in their homes. Henceforth, many people prefer to keep it in banks. However, in this insecure world even banks are not too safe enough to satisfy people needs. A common man feels his valuables are secured if there is efficiency in security. Hence this project can give effective security in minimal cost.

Keywords- Arduino, Servo motor, LCD 16x2, 4x4 Membrane Keypad, Buzzer

I. INTRODUCTION
In this project we are providing enough security to satisfy the user’s needs. The user will be prompted to enter a password to unlock the door. On successful password entry, the door unlocks for a specified amount of time enabling him/her to store or restore his/her valuables. On the other hand, if the user enters an invalid password then corresponding equivalent message will be displayed. This project “Arduino based password protected locking system” can be used to provide enough security in various places like bank lockers, security doors, BIOS locking in computer etc. This project uses an arduino kit that consists of ATMega 2560 which is one of the most popular microcontrollers that consists of 14 digital pins and 6 analog general purpose pins.

In this digital and fast growing world our security ideas also must be smart and digital. Regarding this issue ,we are going to make a keyless door lock system which uses a 4*4 keypad to enter the keys and a DC lock to open and close the door. A 16*2 LCD will be used for display.

III. OBJECTIVE
This project leads to develop a home security system that gives the user complete control over safety for his/her home using arduino.

IV. PROPOSED SYSTEM:
The system has two parts, namely; hardware and software regarding Arduino. The hardware system consists of Arduino board, Keyboard and LCD display. The software consists of set of C/C++ functions. These hardware components are used in order to control the home security. Arduino board will help to develop an interface between the hardware and the software application. The Arduino Board will help in transmitting and receiving the input given by the user. All the inputs and outputs will be shown on the display board and will be taken from the user by keyboard. For the energy purpose, we have used battery here, so that the lock used for safety is a DC lock, motor will be used to ensure the locking and unlocking of the DC lock. On the outer view, we will be able to see just the display board and keypad and the remaining parts of this project will be fixed inside the door for the safety purpose of them.

Pradnya Joshi, Shivani Mane and Prof. Mrs. Veena Patki
Part 1- The main path of appliance is to provide keyless and more secured entry which is made by us. The main part of Arduino is that it act as interface between hardware component and software (Application).

Part 2- Project will be compiled. Compilation of all the modules will be done. The whole system will be executed and will be able to run perfectly.

A. ARDUINO:

Arduino is an open-source hardware and software company, project and user community that designs and manufactures single board microcontrollers and microcontroller kits for building digital devices and interactive objects that can sense and control objects in the physical and digital world. Its products are licensed under the GNU Lesser General Public License(LGPL) or the GNU General Public License/GPL, permitting the manufacture of Arduino boards and software distribution by anyone. Arduino boards are available commercially in preassembled form ors do-it-yourself (DIY) kits.

B. Membrane Keypad:

In our project we used 4X4 matrix membrane keypad. This 16 button keypad provides user interface component for Arduino project. this is programmed using the library . It has the following features:

1. Easy interface to Arduino.
2. Ultra-thin design.
3. Cheap and economical

C. LCD

Liquid Crystal Display, which we are using in our project is JHD 1602A. This display consists of 16 columns and 2 rows. The library that is used is . PIN SUMMARY OF LCD 1602A Pin 1: VSS.

Pin 2: To VDD 5V input.

Pin 3: VL to adjust LCD contrast with the help of 10K potentiometer. Low VL indicates light contrast and high VL indicates dark contrast.

Pin 4: RS for register select. Data registers used for high RS. Similarly, instruction register for low RS.

Pin 5: R/W signal stands for read/write. When R/W bit is high, it indicates a read operation. If R/W bit is low, it indicates write operation.

Pin 6: Clock Enable- Edge triggering.

Pin 7 to 14: Represents from Bit 0 to Bit 7.

Pin 15: back light Anode.

Pin 16: back light cathode.

WHY ARDUINO?

1. arduino is open source platform.
2. economically inexpensive.
3. easy to use.
4. small size so compatible.
5. low power requirement.

V. WORKING OF THE CIRCUIT:

The above flowchart gives a brief idea as to how the project” Password Protected Locking System Using Arduino” works. Initially the password is predefined. When the device is switched on, it resets the servo angle to lock the door. Now the user is prompted to enter the password. The user enters the password through a keypad which is read by the arduino. Now the entered password
is checked with the predefined password. If the password matches, then the servo motor deflects and the door unlocks for 30s else the buzzer beeps indicating the invalidity of the password.

VI. CONCLUSIONS
This project is effective in providing enough security as long as the password is not shared. In future this “Password Based Door locking system Using Arduino” can be provided maximum security by the above enhancements in order to completely satisfy user’s needs. Hence, a common man can afford to purchase such locking system in minimal cost to keep his valuables safely without any worries.

REFERENCES
[4]. Getting started with Arduino, Mazzimo Banzzi(cofounder), 2 http://instructables.com nd
[6]. Introduction to Arduino, a piece of cake, Alan G Smith, September 30 2011
[7]. M. Margolis, Arduino Cookbook, O’reilley, CA, USA, 2011
[9]. The working principle of an Arduino, Abuja, Electronics, Computer and Computation (ICECCO), 2014 11th International Conference, IEEE
[10]. An RF Based relay for control and communication for systems for unmanned ground vehicle and air vehicle, 2nd international conference on computing for sustainable global development, BVICIAM, New Delhi, India, 03/2015