ABSTRACT

- Security is the degree of resistance to or protection from harm.
- It is an essential aspect especially in case of home security.
- An electronic lock is a device which has an electronic control assembly attached to it.
- They are provided with an access control system.
- This system allows the user to unlock the device with a password.
- The password is entered by making use of a keypad.
- The user can also set a password to ensure better protection.
- This project is developed using FPGA.

STATE DIAGRAM

CONCEPT

- Initially the system will be in unarmed state.
- The password has to set and pound symbol is to be pressed to lock the system.
- Now the system is in locked state.
- Once the correct code or password is entered, the door goes to open state and the concerned person is allowed to access the secured area.
- If the password entered is wrong, the fail count increases and the door remains in closed state.
- The alarm buzzes when the fail count reaches the maximum.
- If the password has to be changed, enter the master key when the door is in open state and then enter the new password to change.
- In alarm state give the password and the master key to unmanned.

TRUTH TABLES

PROCEDURE

- LEDs 7 to 2 are used to represent the output states alarm, locked, armed, fail and open.
- The toggle switch SW7 is used as door signal.
- Since row and column signals are to be given simultaneously we short the row and column to work on the FPGA board without any extra equipment.
- LED7 is turned on when the alarm buzzes.
- LED6 is turned on when the door is in locked state.
- LED5 is turned on when armed.
- LED4 is turned on when the password entered is incorrect i.e. fail state.
- LED3 is turned on when the door is opened.

RTL SCHEMATIC

RESULTS

CONCLUSIONS AND FUTURE SCOPE

- This password based smart security lock system is used in places where more security is needed.
- This system can be used to secure lockers and doors.
- As future scope, we can add fire and LPG sensors so that in case of emergency the door opens automatically.