

ELEVATOR CONTROL SYSTEM

Lizeth Buendia
Tahir Boftein
Weiya Xiang

INTRODUCTION

The aim of this project is to simulate a real lift control

Tools:

- Microcontroller PIC18F4331
- Assembler language
- MPLAB Integrated Development Environment

The Project is mainly focus on:

- Hardware Design
- Software Design

HARDWARE DESIGN



FlashDemo.exe

INPUT AND OUTPUT COMPONENTS

INPUT:

1. B1 (first floor Button)
2. B2U (Second floor Button UP)
3. B2D (Second floor Button DOWN)
4. B3 (Third Floor Button)
5. SWT1 (arrived to First floor)
6. SWT2 (arrived to Second floor)
7. SWT3 (arrived to Third floor)

Dial Pad

8. GROUND (going to First Floor)
9. SECOND (going to Second Floor)
10. THIRD (going to Third Floor)
11. OPEN (Open the door)
12. CLOSE (close the door)
13. LOCK (lock the elevator for maintenance)

OUTPUT:

1. L11 (1st floor LED indicate elevator at First Floor)
2. L12 (1st floor LED indicate elevator at Second Floor)
3. L13 (1st floor LED indicate elevator at Third Floor)
4. L21 (2nd floor LED indicate elevator at First Floor)
5. L22 (2nd floor LED indicate elevator at Second Floor)
6. L23 (2nd floor LED indicate elevator at Third Floor)
7. L31 (3rd floor LED indicate elevator at First Floor)
8. L32 (3rd floor LED indicate elevator at Second Floor)
9. L33 (3rd floor LED indicate elevator at Third Floor)
10. DISPLAY LCD (shows characters of the action)
11. PULLEY MOTOR (make the elevator move through floors)
12. SERVO MOTOR (Open / Close the elevator doors)
13. F1 (1st floor Red LED indicate elevator can not be used)
14. F2 (2nd floor Red LED indicate elevator can not be used)
15. F3 (3rd floor Red LED indicate elevator can not be used)

PORT ASSIGNMENTS

Ports Assignments:

port A:

- 0 ~ RA0= 2 NOT USED
- 1 ~ RA1= 3 B2U (Second floor Button UP)
- 2 ~ RA2= 4 B2D (Second floor Button DOWN)
- 3 ~ RA3= 5 NOT USED
- 4 ~ RA4= 6 SWT1 (arrived to First floor)
- 5 ~ RA5= 7 SWT2 (arrived to Second floor)
- 6 ~ RA6=14 SWT3 (arrived to Third floor)
- 7 ~ RA7=13 GROUND (going to First Floor)

port C:

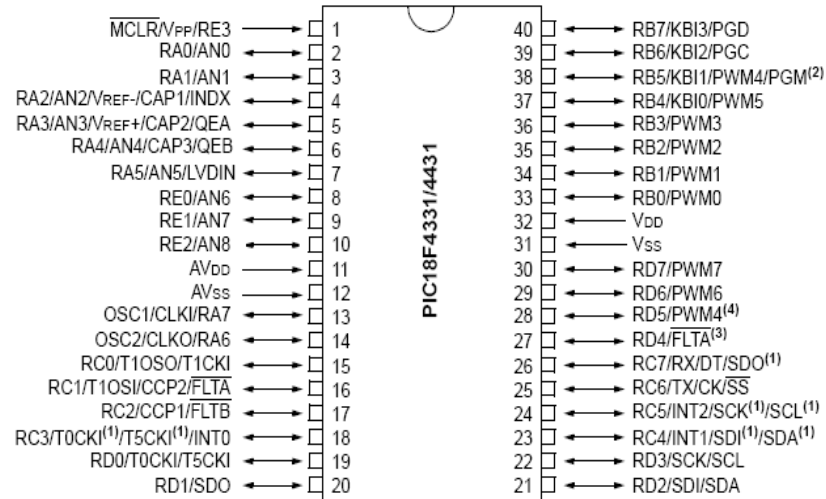
- 0 ~ RC0= 15 SECOND (going to Second Floor)
- 1 ~ RC1= 16 THIRD (going to Third Floor)
- 2 ~ RC2= 17 OPEN (Open the door)
- 3 ~ RC3= 18 CLOSE (close the door)
- 4 ~ RC4= 23 B1 (first floor Button)
- 5 ~ RC5= 24 B3 (Third Floor Button)
- 6 ~ RC6= 25 LOCK (lock the elevator for maintenance)
- 7 ~ RC7= 26 F1, F2, F3 (Flashing Red LEDs)

port B:

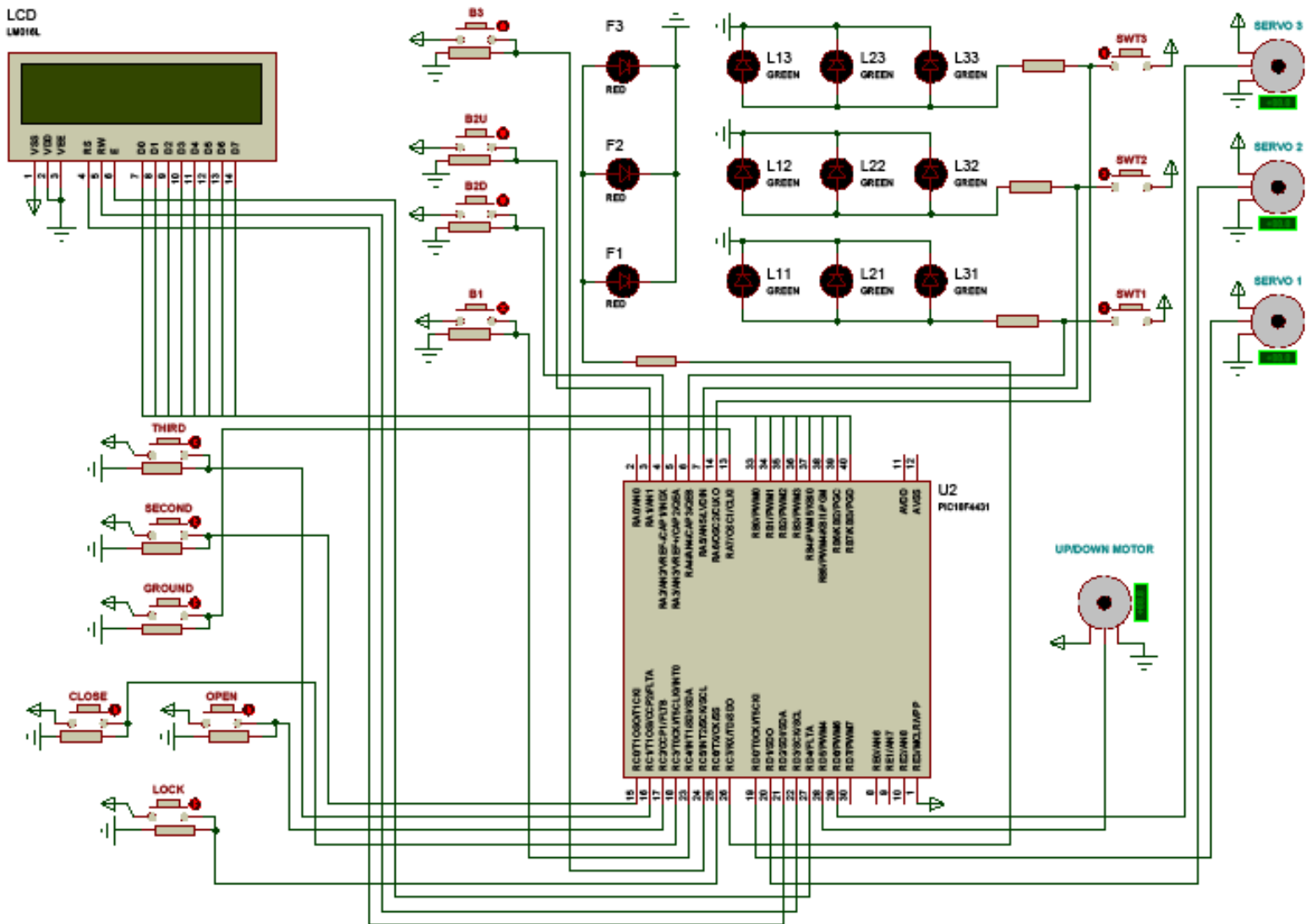
- 0 ~ RB0= 33 ** LCD (shows characters of the action)
- 1 ~ RB1= 34 **
- 2 ~ RB2= 35 **
- 3 ~ RB3= 36 **
- 4 ~ RB4= 37 **
- 5 ~ RB5= 38 **
- 6 ~ RB6= 39 **
- 7 ~ RB7= 40 **

port D:

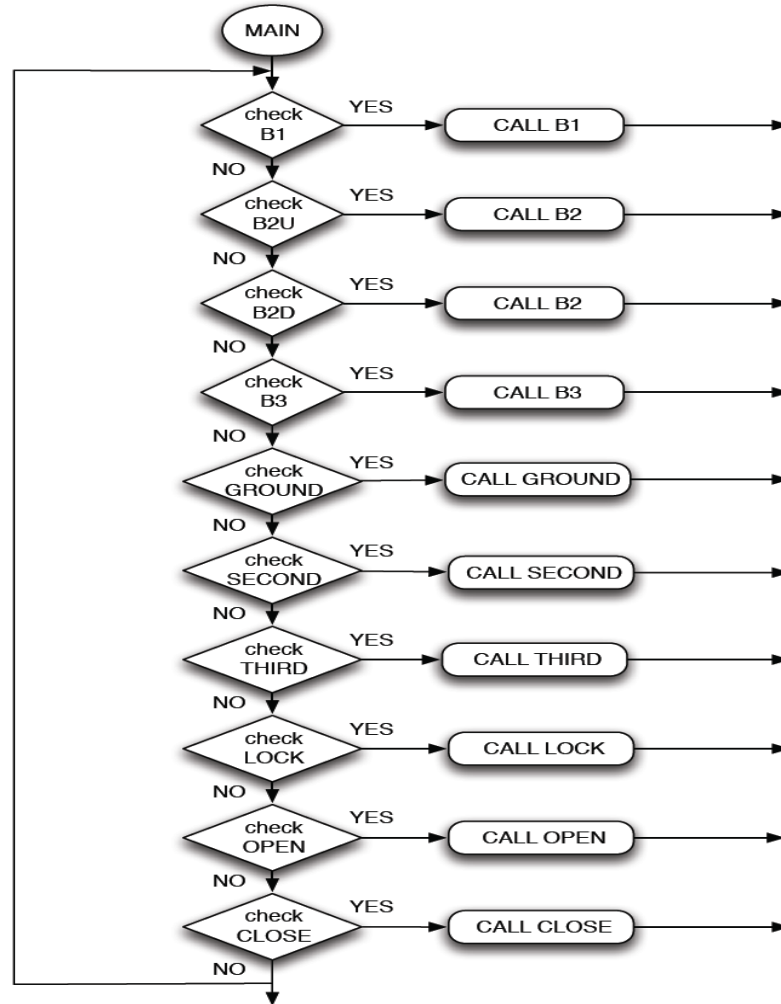
- 0 ~ RD0= 19 SERVO MOTOR 1 (Open / Close the elevator doors)
- 1 ~ RD1= 20 SERVO MOTOR 2 (Open / Close the elevator doors)
- 2 ~ RD2= 21 ** LCD RS
- 3 ~ RD3= 22 ** LCD R/W
- 4 ~ RD4= 27 ** LCD E
- 5 ~ RD5= 28 UP/DOWN MOTOR (make the elevator move through floors)
- 6 ~ RD6= 29 SERVO MOTOR 3 (Open / Close the elevator doors)
- 7 ~ RD7= 30 NOT USED



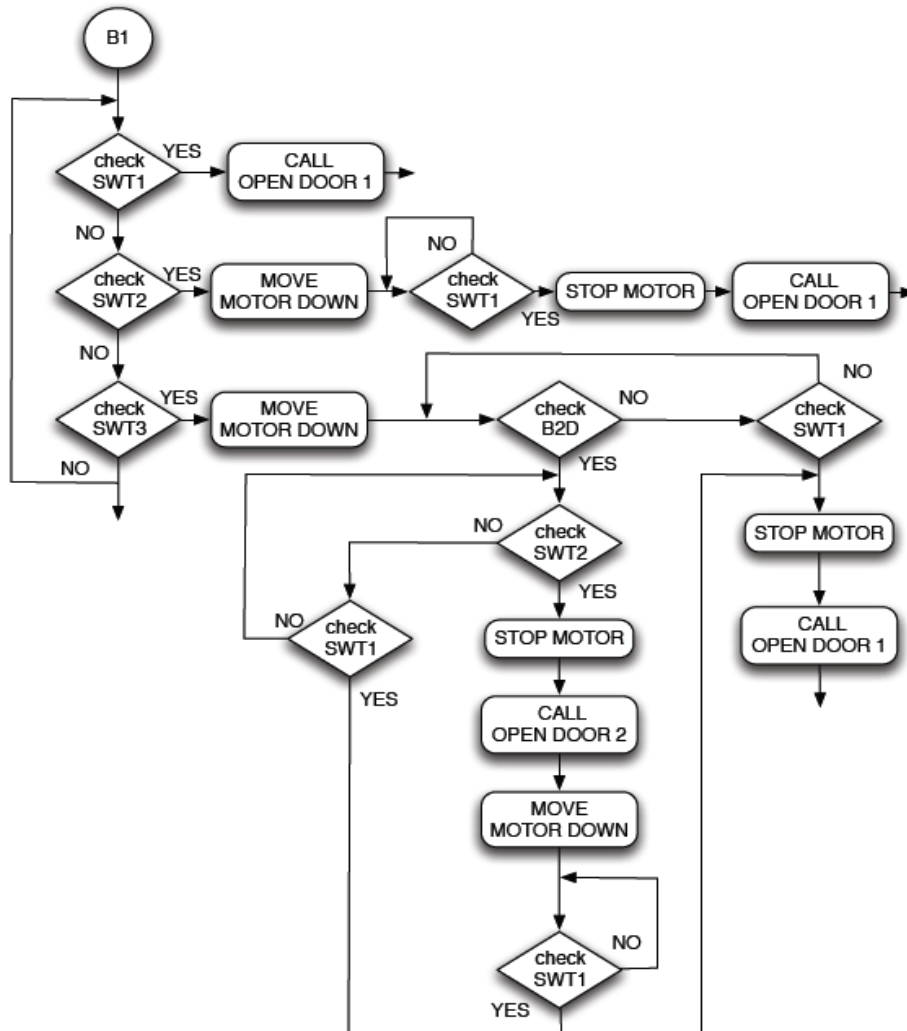
SCHEMATIC



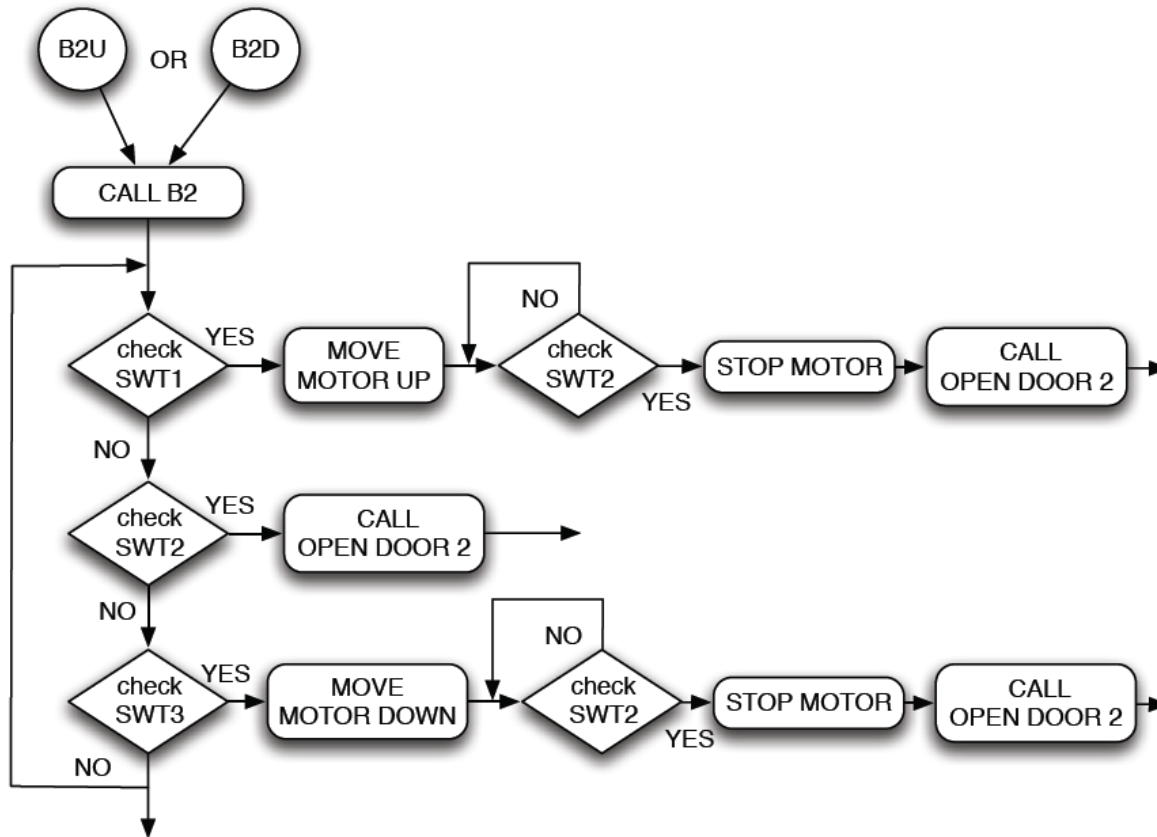
SOFTWARE DESIGN



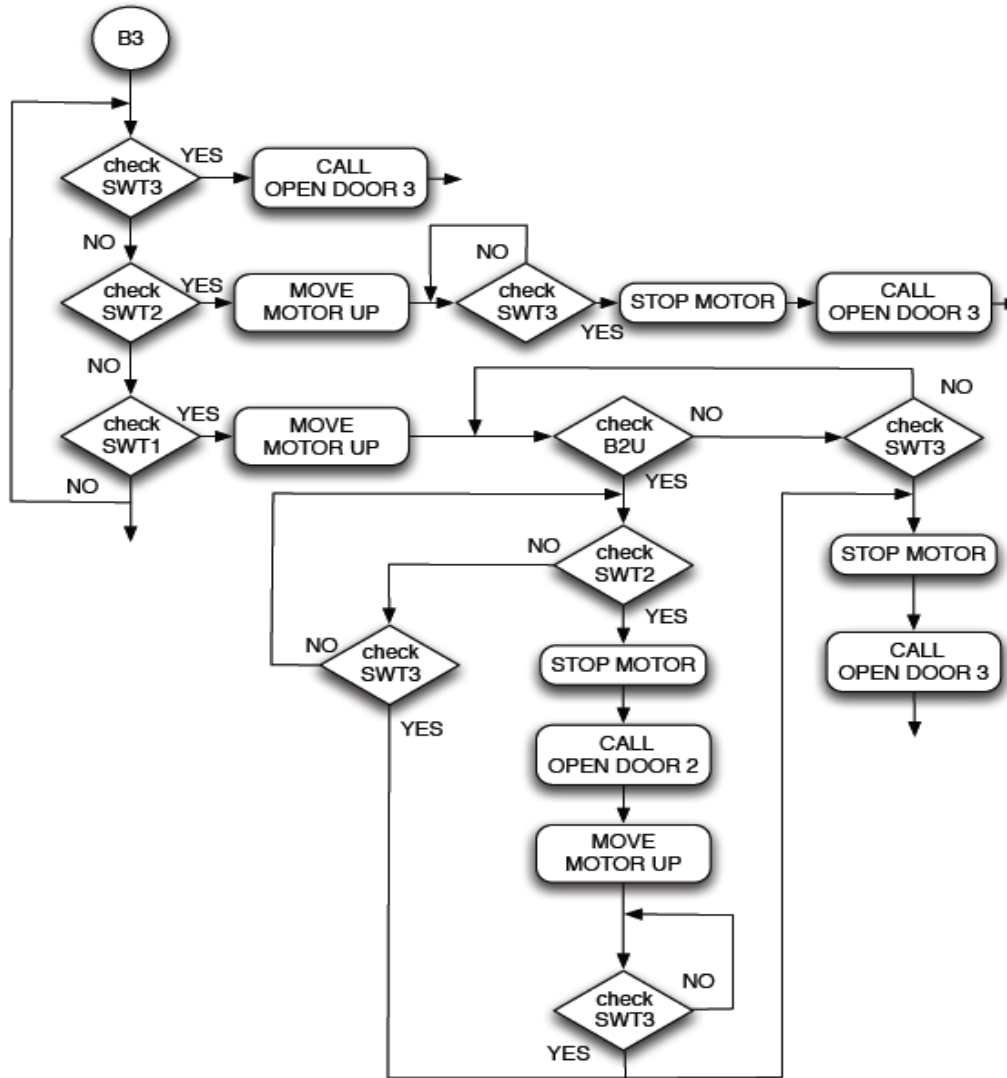
FLOWCHARTS



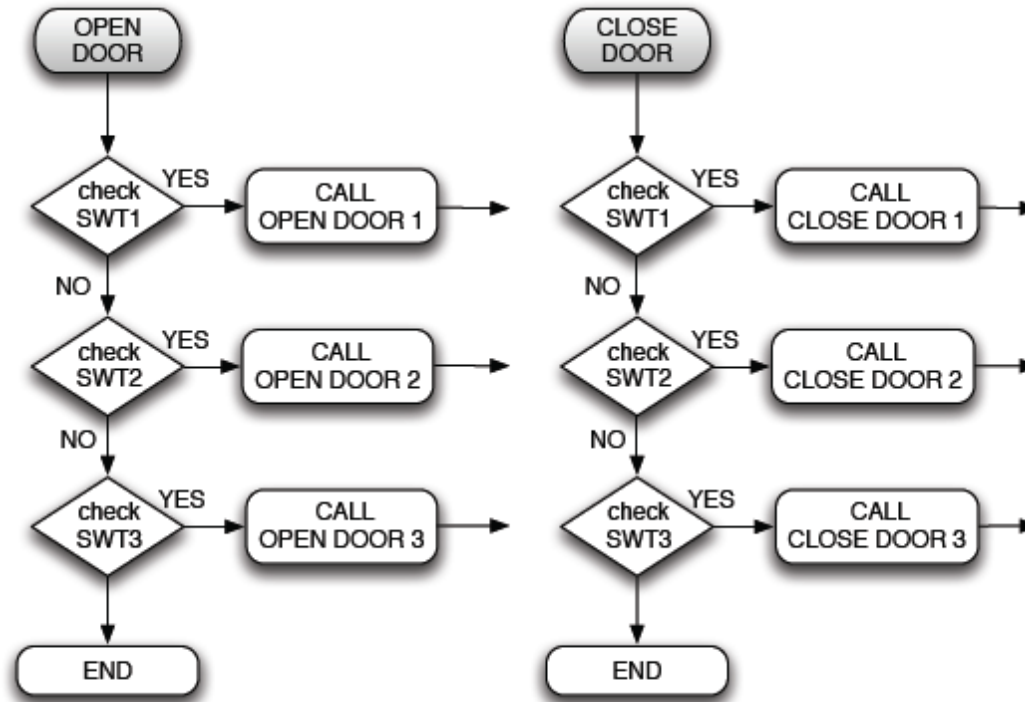
FLOWCHARTS



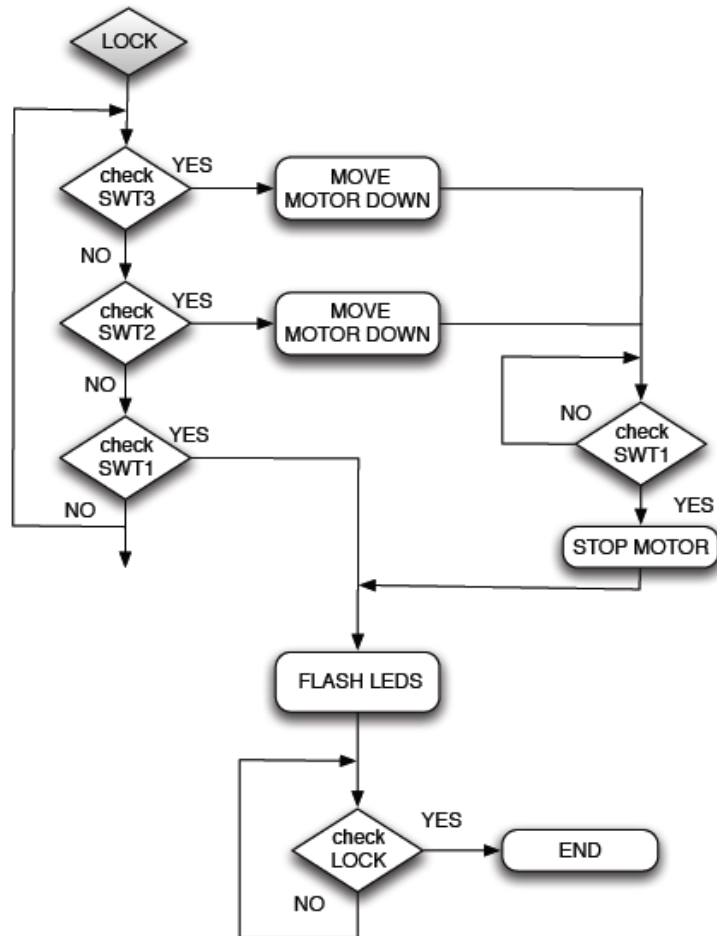
FLOWCHARTS



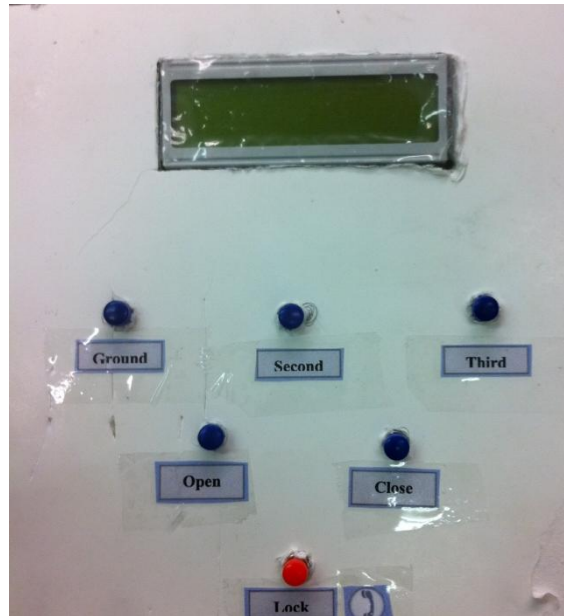
FLOWCHARTS



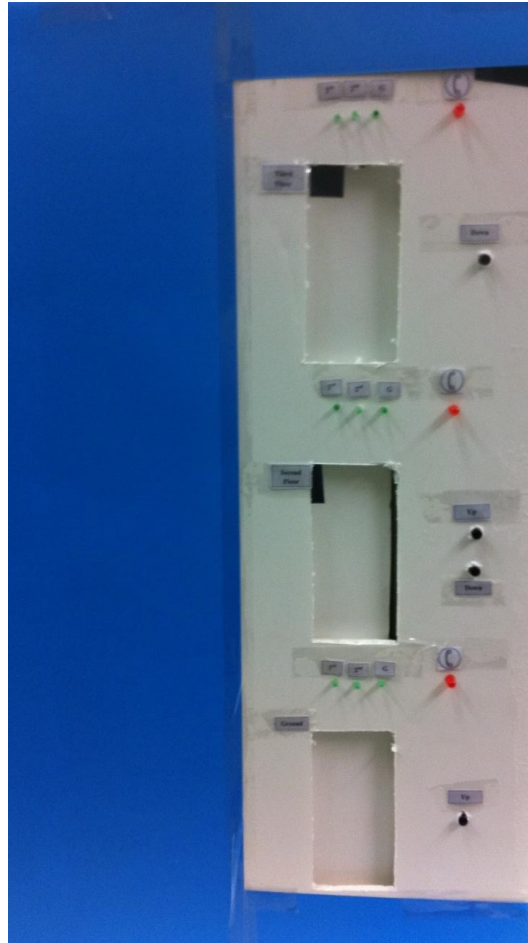
FLOWCHARTS



FINAL DESIGN DIAL-PAD



FINAL DESIGN ELEVATOR



VIDEO

THANKS YOU!!!