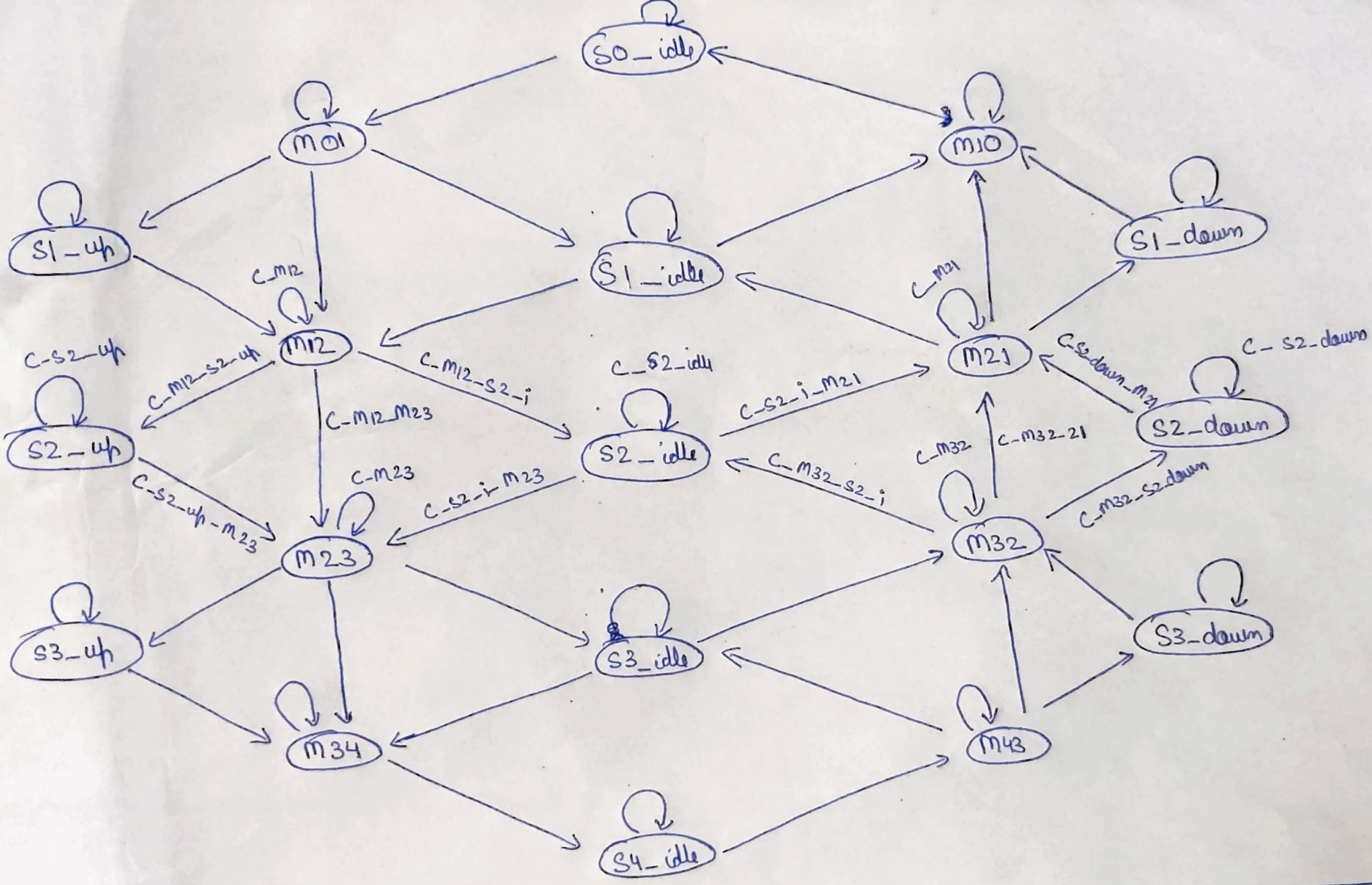


Lift State Machine

FSM

GROUP-3 CS224 Assignment-6

# CONDITIONS

## Logic for transitions from floor 2 (General)

C_S2_idle : ( ~(!up) && ~(!down) && ~(!f) ) || ( up[2]|| f[2]|| down[2] )

C_S2_i_M21 : ( ( f[0] || f[1] || up[0] || (up[1] || down[1]) ) && ~C_S2_idle

C_S2_i_M23 : ( ( f[3] || f[4] || (up[3] || down[2]) || down[3] ) && ~C_S2_idle && ~C_S2_i_M21

C_M12_S2_i : (nextfloor==2 && temp!=7) && i>=3

C_M32_S2_i : (nextfloor==2 && temp==7) && i>=3

C_S2_down_M21 : ~(C_S2_down)

C_S2_down : ( f[2] || up[2] || down[1] )

C_M32_S2_down : (nextfloor==2 && temp!=7) && i>=3

C_S2_up_M23 : ~(C_S2_up)

C_S2_up : ( f[2] || up[2] || down[1]

C_M12_S2_up : (nextfloor==2 && temp!=7) && i>=3

C_M12 : (i<3)

C_M21 : (i<3)

C_M23 : (i<3)

C_M32 : (i<3)

C_M12_M23 : (nextfloor!=2)

C_M32_M21 : (nextfloor!=2)

The logic for other states and corresponding transitions is mentioned in the code.

#Types of States:

① S_i_idle  $i \in \{0,1,2,3,4\}$

② S_i_↑  $i \in \{1,2,3\}$ → signifies we are at some floor and currently going up

③ S_i_↓  $i \in \{1,2,3\}$

④ M_i_i+1  $i \in \{0,1,2,3\}$

⑤ M_i_i-1  $i \in \{1,2,3,4\}$

# Slice LUTs used = 220

# Registers as FF (Slice Registers) used = 58.