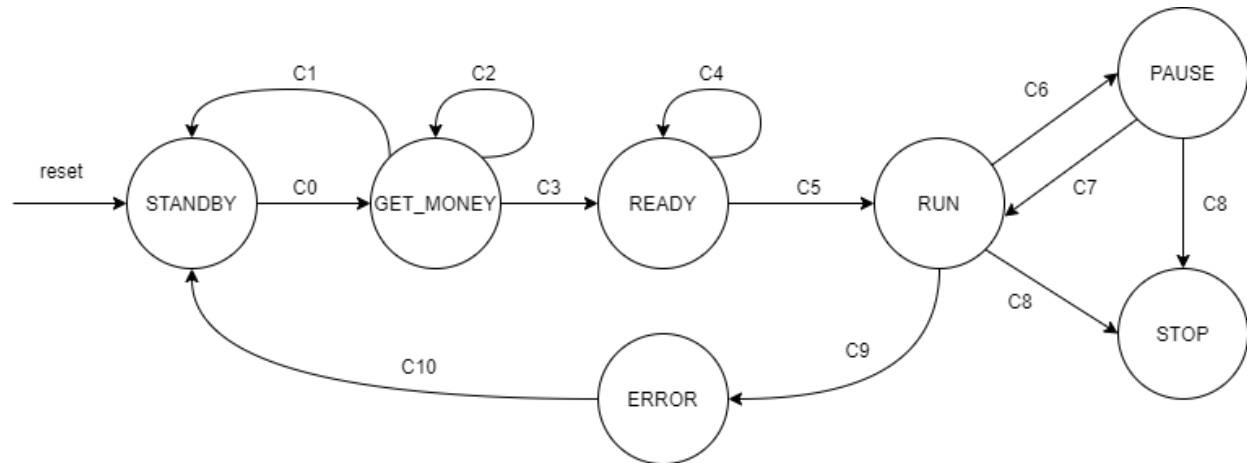Name: Nhan Ngọc Thiện

Student ID: 1752508

Homework 4 Report

-State machine for washing machine:

-State determination:

STANDBY:

 + RLED is on

 + money_received = 0

 + waiting for inserting money

GET_MONEY:

 + only accept 10-cent, 20-cent, 50-cent coins

 + money_received += amount in

READY:

 + RLED is off, BLED is on(not blinking)

 + Timer is set to 30 minutes

 + When RUN button pressed, money_received = 0 (no returning any redudancies)

RUN:

 + BLED is blinking

 + Timer countdowns to 0

PAUSE:

 + BLED is on (not blinking)

 + Timer still countdowns to 0

STOP:

    + Stop machine

    + Stop timer

ERROR:

    + BLED is off, RLED is on and blinking

-State transition condition:

C0: inserting 10-cent, 20-cent, 50-cent coins

C1: button RESET pressed

C2: inserting 10-cent, 20-cent, 50-cent coins

C3: money_received >= 50 cents

C4: button RUN not pressed

C5: button RUN pressed

C6: button PAUSE pressed

C7: button RUN pressed

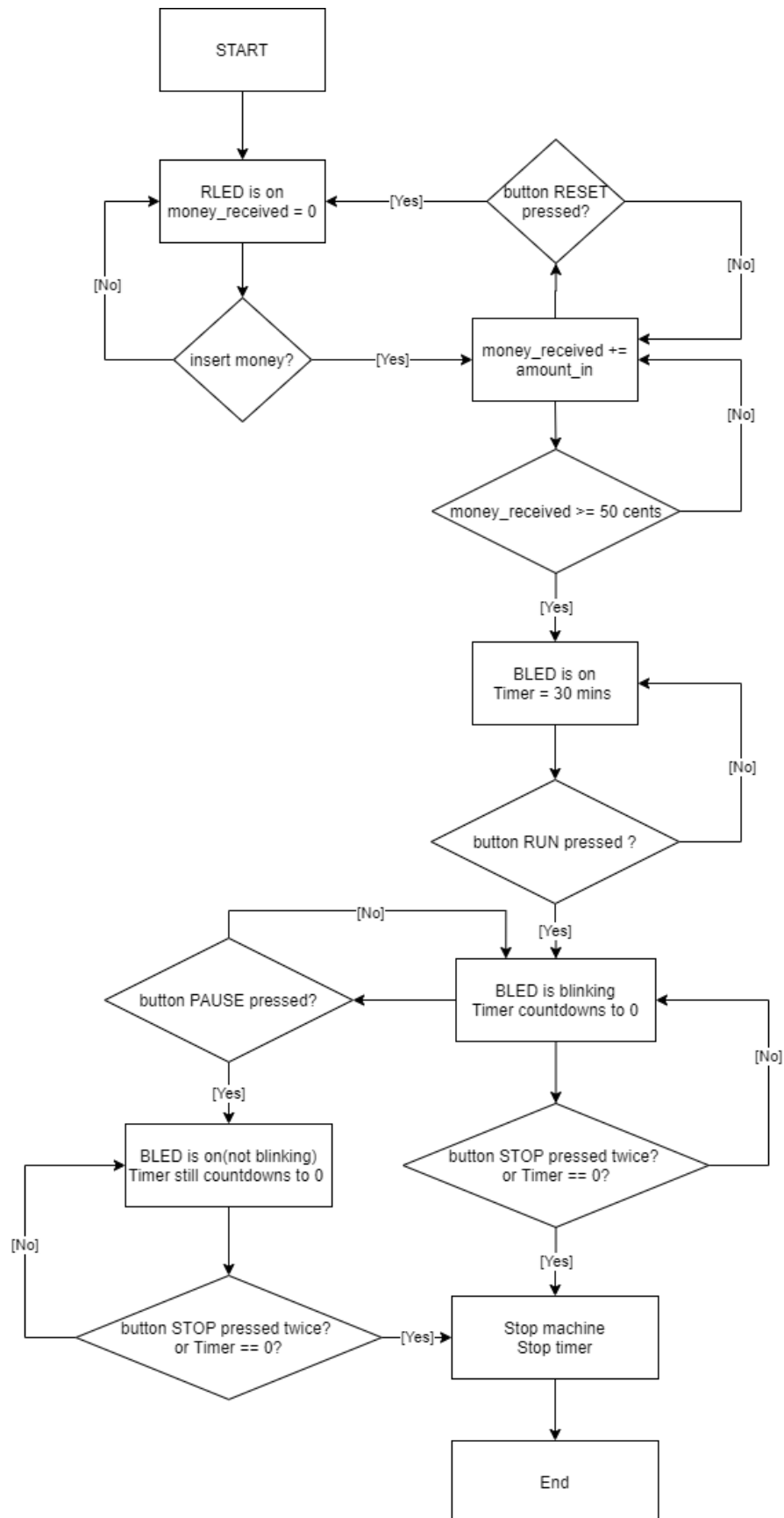**C8:** Timer == 0 or button STOP pressed twice

C9: errors occured

C10: button RESET pressed

-Flow chart for washing machine:

```
                    START
                      |
                      v
              +-----------------+
       +----->| RLED is on      |<------[Yes]------+
       |      | money_received=0|                  |
       |      +-----------------+            +--------------+
       |              |                      | button RESET |
     [No]             v                      |  pressed?    |
       |       +--------------+              +--------------+
       |      /                \                |        ^
       +-----<  insert money?   >---[Yes]--->   |      [No]
              \                /           +------------------+
               +--------------+            | money_received+= |<---+
                                     +----->|   amount_in      |    |
                                     |      +------------------+    |
                                   [No]            |             [No]
                                     |             v                |
                                     |    /------------------\      |
                                     +---< money_received>=50 >-----+
                                          \     cents       /
                                           +--------------+
                                                 |
                                               [Yes]
                                                 v
                                          +---------------+
                                   +----->| BLED is on    |
                                   |      | Timer=30 mins |
                                   |      +---------------+
                                 [No]            |
                                   |             v
                                   |    /-----------------\
                                   +---< button RUN pressed?>
                                        \-----------------/
                                          |            |
                     +------[No]----------+          [Yes]
                     |                                 v
          /-------------------\             +---------------------+
         < button PAUSE pressed?>---------->| BLED is blinking    |<---+
          \-------------------/    <--------| Timer countdowns to0|    |
                     |                      +---------------------+    |
                   [Yes]                            |               [No]
                     v                              v                  |
        +---------------------------+     /---------------------\      |
        | BLED is on(not blinking)  |    < button STOP pressed   >-----+
        | Timer still countdowns to0|     < twice? or Timer==0?  /
        +---------------------------+      \-------------------/
                     |                              |
                     v                            [Yes]
        /---------------------\                     v
       < button STOP pressed   >---[Yes]--->+---------------+
       < twice? or Timer==0?   /            | Stop machine  |
        \---------------------/             | Stop timer    |
           |                                +---------------+
         [No]                                      |
           (loop back up)                          v
                                          +---------------+
                                          |     End       |
                                          +---------------+
```

-State machine for music player:

Start

Stop playing music

button Start pressed?
[No]

[Yes]

Start playing music → button Stop pressed?

[Yes]

[No]

button Pause pressed?

[Yes]

[No]

Pause music

[No]

button Start pressed?

[Yes]

button Stop pressed?

[Yes]

[No]

End