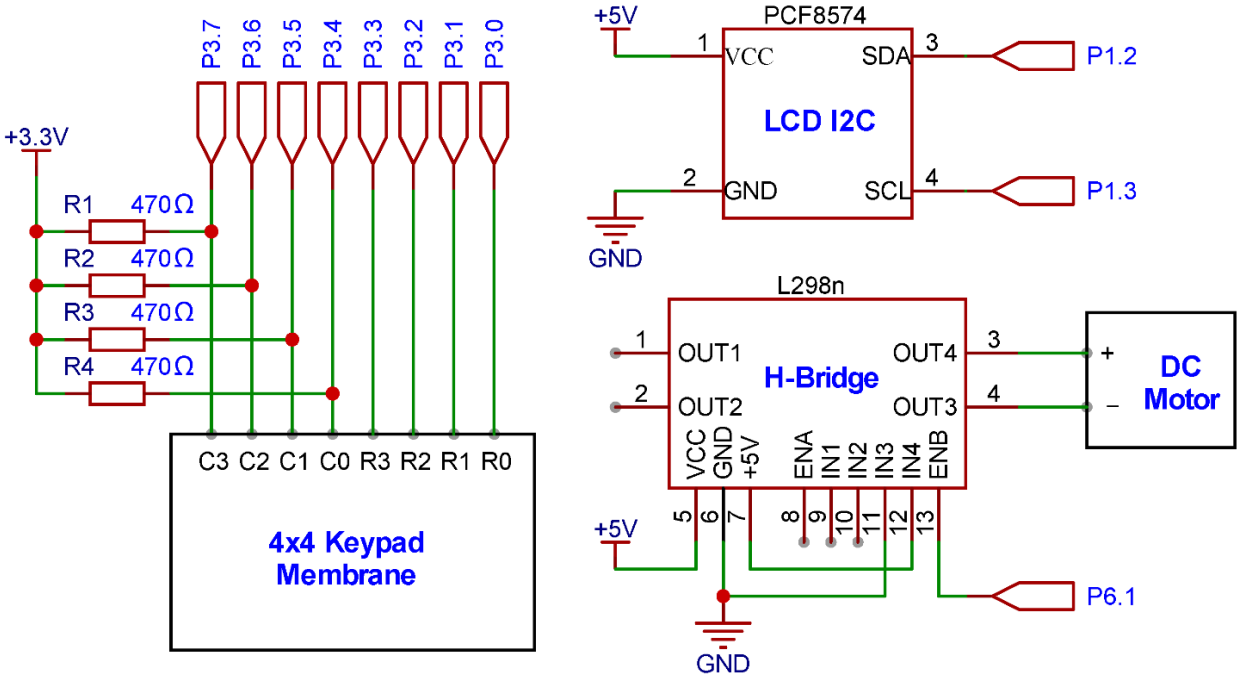
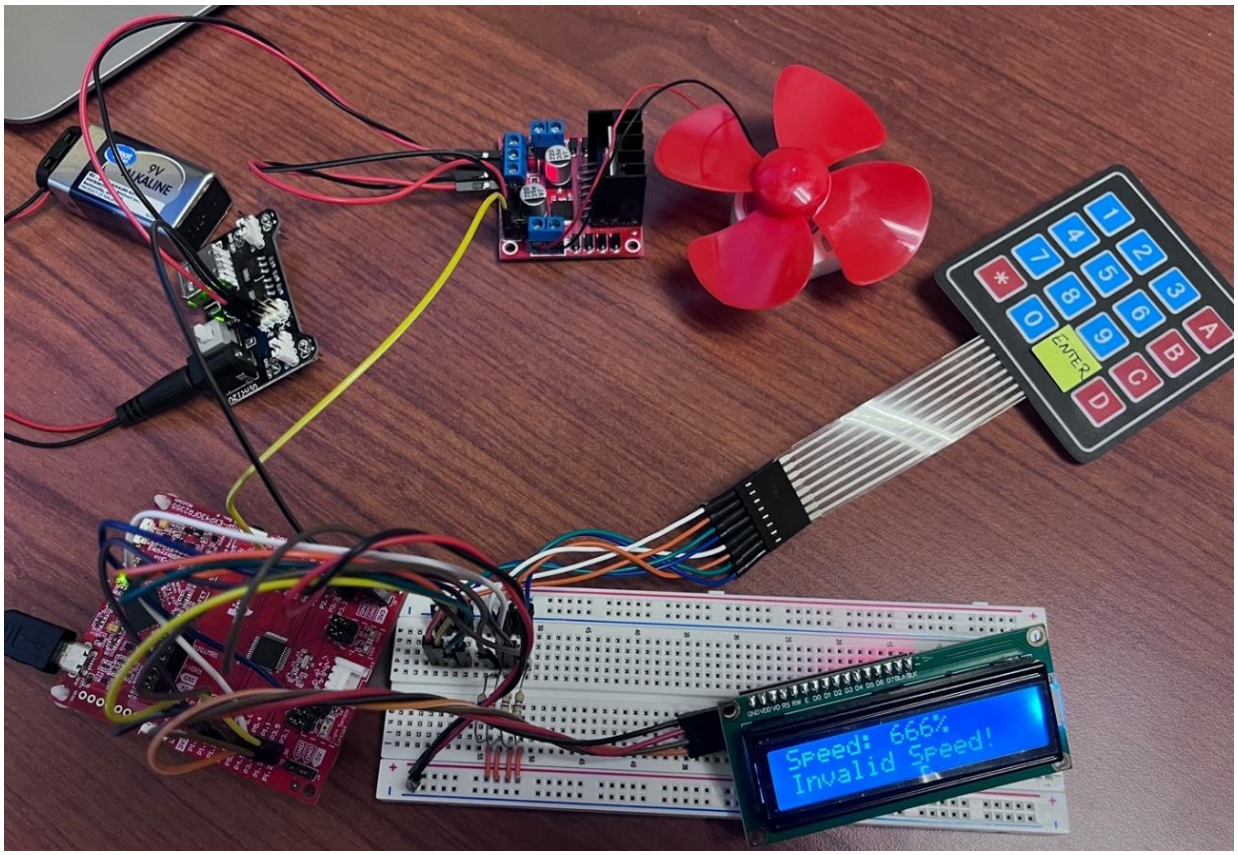
WIRING DIAGRAM:





PSEUDOCODE

```
Init Keypad                    // Col[3:0] = P3[7:4];  Row[3:0] = P3[3:0]
Init I2C                       // SDA = P1.2; SCL = P1.3
Init LDC
Init PWM signal                // PWM output = P6.1 (TB3.2)
Set key_val = 0                // Stores input char. 0 if no key input or err
Set speed   = 0                // Stores DC motor speed [%]

repeat
      while (key_val = get_key()) == 0 then
            /* wait for a key to be pressed */
      end

      if speed = 0 then        // reset LCD when speed is reset to 0
            reset_LCD()
      end

      if (key_val >= '0' and key_val <= '9') then     // input is digit
            LCD_Send(key_val)                         // write char to LCD
            speed = (speed * 10) + (key_val – '0')    // update speed value
            if speed > 100 then
                  LCD_SetCursor(0,1)            // Move cursor to next line
                  LCD_write("Invalid Speed!")   // Error message
                  speed = 0                     // reset speed and restart
            end

      else if key_val == '#' then          // # is enter speed key; input end
            LCD_SetCursor(0,1)             // Move cursor to next line
            LCD_write("DONE")              // Completion message
            set_duty_cycle(speed)          // Set motor speed (= PWM duty)
            speed = 0                      // reset speed and restart

      else                                 // Invalid input key
            LCD_SetCursor(0,1)             // Move cursor to next line
            LCD_write("Invalid Input!")    // Error message
            speed = 0                      // reset speed and restart
      end
end
```