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**Lab 5 Report**

1. **Description of the library:**

* We have the PIC library, the compiler library, the string library, and our header file library.

1. **State the supported microprocessor and LCD:**

* Microprocessor: PIC24FJ64GA002 Microprocessor.
* LCD: M0802A-RN-GBW.

1. **Describe any other libraries required (dependencies) :**

* The header.h library was used to declare the functions and then initializing in header.c. These functions were used in our main code file.

1. **Document the four main functions required in this lab:** 
   1. void lcd\_init(void):

* Initializes the LCD by setting the extended instruction mode which interval osc, set contrast C3-C0, and set C5-C4 (Ion, Bon)
* As well as setting the normal instruction which turn on and clear the display.
  1. void lcd\_setCursor(char x, char y):
* Set the starting location at which the text written to the LCD will be displayed.
  1. void lcd\_printChar(char myChar)
* Takes a given character and prints it on the LCD.
  1. void lcd\_printStr(const char \*s):
* Take a given string of character and prints it on the LCD, if the string is greater than 8 characters, the LCD will scroll the string across the display until the last character then it will stop.
  1. void wait(int number):
* This is our delay function in which we used loops for the delay instead of a timer. It makes a delay of 1 ms multiply by the given number .The initial value was gotten by checking the stopwatch on the debugger. Used this function in our lcd\_init and other places.
  1. void setup(void);
* Initializes the ports on the PIC and sets up the I2C. Beside seeing the frequency to 16 MHz and made all of the port digital.
  1. void lcd\_cmd(char Package):
* Takes a single byte/character command and writes it out to the I2C bus. Used in the setCursor function.
* Initiate start and stop condition. As well as, setting the slave address, control byte, and data byte.