

LCD UI Library Routine

Submitted by:

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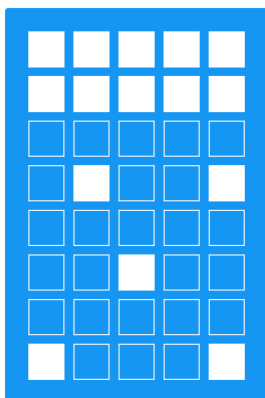
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Introduction

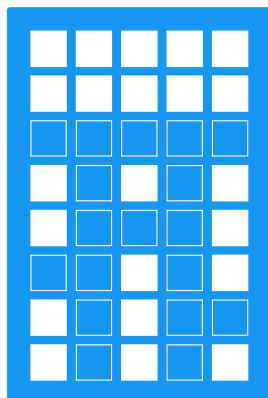
The LCD UI library routine allows programmers to display alphanumeric characters and predefined custom characters with ease. The library routine contains five subroutines that allow a programmer to:

- Initialise the LCD
- Clear the display
- Move the cursor to a specific location
- Clear the display and move the cursor to a specific location
- Display alphanumeric characters
- Display four predefined custom characters

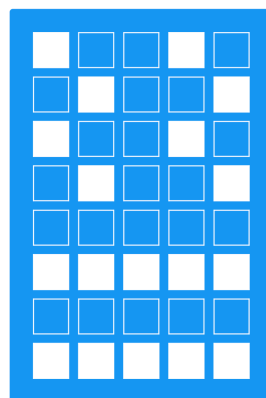
The four predefined custom characters include:



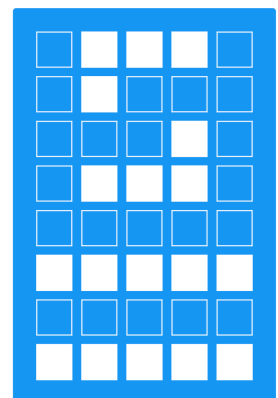
Delicate Wash



Heavy Duty
Wash



Tumble Dry



Spin Dry

Header File Listing

```
#ifndef _LCD_UI_
#define _LCD_UI_
// Initialize LCD
void initLCDUI(void);

// Clear display and cursor home
void clearDisplay(void);

// Move the cursor to a specific location
void moveCursorTo(int row, int col);

// Clear the display and move the cursor to a specific location
void clearDisplayAndCursorTo(int row, int col);

// Display alphabets and numbers
void displayAlphaNumeric(char *message);

// Display custom graphics
void customGraphics(int selectedGraphic);
#endif
```

Library Routine Listing

```
#include <xc.h>
#include <stdio.h>
#include <string.h>
#include "amt.h"

// Cursor location
int cursorLocation = 0x00;

void initLCDUI() {
    // Initialize LCD panel
    LCD8init();
}

void clearDisplay() {
    // Clear display and cursor home
    LCD8send(0x01, 0);
    // Short delay
    delay_ms(50);
}

void moveCursorTo(int row, int col) {
    // Compute cursor location based on row and col
    // Defaults to first row given any number expect two
    cursorLocation = ((row == 2) ? 0xBF + col : 0x7F + col);
    // Move cursor to specified location
    LCD8send(cursorLocation, 0);
}

void clearDisplayAndCursorTo(int row, int col) {
    // Clear the display
    clearDisplay();
    // Move cursor to specified location
    moveCursorTo(row, col);
}

void displayAlphaNumeric(char *message) {
    // Initialize buffers
    char buffer[16];
    // Format the alphanumeric message into string
    sprintf(buffer, message);
    // Move the cursor to the cursor location specified previously
    LCD8send(cursorLocation, 0);
    // Write data from buffer to LCD display
    for (int i=0; buffer[i] != 0; i++) LCD8send(buffer[i], 1);
}

void customGraphics(int selectedGraphic) {
    // Delicate wash, heavy duty wash, tumble dry and spin dry
    LCD8send(0x00+selectedGraphic, 1);
}
```