There are two parts in this folder:

**Part 1: UART\_Project**

Assembly code for controlling a Sitronix ST7656R 128x64 pixel LCD Display with an Atmel 8051 AT89LP828/428 microprocessor. Has UART functionality.

All files (.dsm, .asm, .hex, etc.) are included.

Hardware note: an external oscillator should be added as we have determined that the 8051 on-board clock might not accurate enough for UART communication.

**Part 2: 8051 Control Panel**

GUI that allows for communication between laptop/desktop to 8051 microprocessor and control of LCD Display pixels. Created with a C# form application from Microsoft Visual Studio 2015.

Both the standalone executable and the source code are attached.

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Communication specifics:

-Baud rate: 9600 bits/s

-8 bit mode

-4 bytes are sent with each pixel on/off action

-first byte: pixel page

-second byte: pixel column high byte

-third byte: pixel column low byte

-fourth byte: column data (i.e. which pixels in column are on or off)

-microprocessor sends back each received byte to PC