ECE Center for Intelligent Systems Banner Display

Hardware Specifications

1. **Features Set**

   - Display text in a specific font (computer or custom font).

   - Text crawls across the display from right to left

     - Each letter will be visual for approximately 2 seconds per display while crawling

   - Display RGB colors (red, green, blue, colors blended)

   - Text stored in memory

   - Power supply connected to an outlet

   - Some casing or board for components for easy transportation

2. **Hardware**

   Desired Hardware Specifications:
   - 7 in (height) x 36 in (length) display
   - 6 in (height) x 2 in (length) display letters

   Actual Hardware Specifications:
   - 5 in (height) x 10 in (length) display
     - 5 in (height) x 30 in (length) chained 3-display
   - 4 in (height) x 2 in (length) display letters
     - 3 letters per display (9 letters at a time)

   Proposed Hardware:
   - [64x32 RGB LED Matrix - 4mm pitch](#) Product ID 2278
     - 10.0" L x 5.0" W, 4mm pitch
     - $39.95
     - Chaining Support
     - 12 Digital Pins Per
     - 800 Byte Per
     - We would need x3 to somewhat meet desired hardware specs. Total = $119.85
   - [LCS75US05 Power Supply](#) Product ID 1470-LCS75US05-ND

- ○ 5V and 14A
- ○ $16.50 + $6.99 shipping
- ○ To conserve power, only some LEDs will be lit at a time
- Microcontroller - TBD
  - ○ 54 digital I/O pins
  - ○ 8kB of RAM
  - ○ 5 Volts
- [USB Cable](#)
  - ○ 3 Feet / 1 meter long
  - ○ Used to connect arduino to Laptop to update
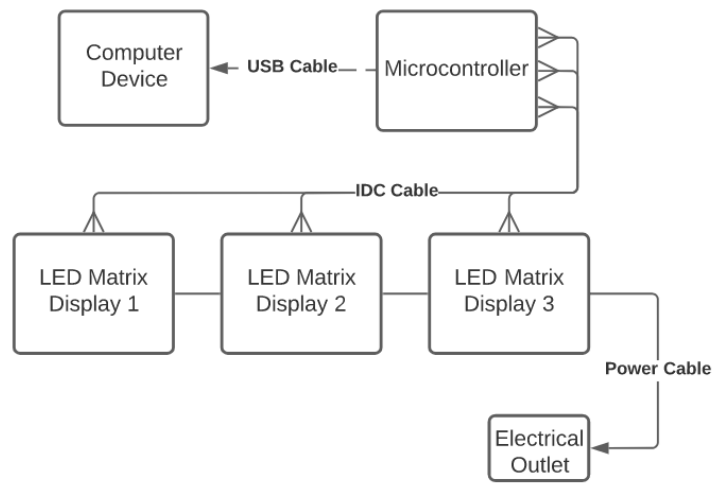 - ○ $2.95

Estimated Total: $209.98

3. **Software**

- Compatible with Windows
- Command Line Interface
  - ○ Enter a text phrase to be displayed
  - ○ Option for text to scroll
  - ○ Different styles to choose from (colors, animations)

4. **Block Diagrams** (1. software interface and 2. controller and how to drive lights)

Controller Diagram:

Computer Device

USB Cable

Microcontroller

IDC Cable

LED Matrix Display 1

LED Matrix Display 2

LED Matrix Display 3

Power Cable

Electrical Outlet

Software Interface:

Computer Device

1.0
Enter Command line Interface

2.0
Enter Text Options

3.0
Enter Color Options

4.0
Enter Scroll Options

Microcontroller

LED Display

Input from Command Line Interface

Bitmapped Font

Convert using Memory Mapped Display Pixels

Apply Configuration Settings

Show on Display