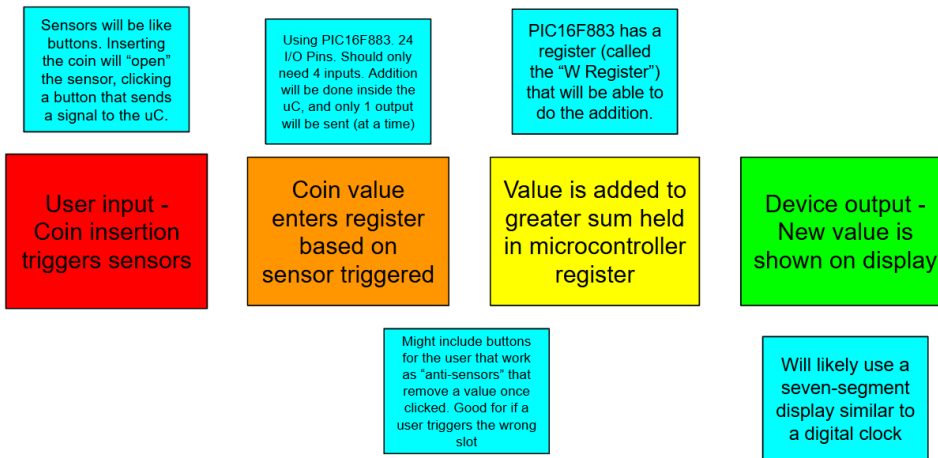


Block Diagram:



Device size: 6in x 6in x 4.5in

Sensors: Fairchild LED56 IR emitter & Fairchild L14P2 IR Transistors. These components will trigger the PIC16F883 to count when the coin obstructs the IR light's path from the emitter to the receiver. Christopher already has L14P2s and LED56's, so we chose to go with those for our design.

Datasheets:

L14P2:

<https://mm.digikey.com/Volume0/opasdata/d220001/medias/docus/2589/L14P1%2C%20L14P2.pdf>

LED56:

https://mm.digikey.com/Volume0/opasdata/d220001/medias/docus/2579/LED55B_C%2C%20LED56.pdf

Microcontroller: PIC16F883. We chose the PIC16F883 because the 3 of us already have familiarity with its functions from prior courses, which we determined would be sufficient for what our device needs to be able to do (add and retain values in its memory).

Datasheet:

<https://ww1.microchip.com/downloads/aemDocuments/documents/OTH/ProductDocuments/Datasheets/40001291H.pdf>

Display: 4 Digit 7-Segment LED Display. We decided to go with a 4 digit display because we felt that 4 digits would set a reasonable max value (\$99.99), and we have previously worked with 7-segment displays.

HDSP-B03E Datasheet:

<https://www.mouser.com/datasheet/2/678/av02-0568en-1828071.pdf?srltid=AfmBOoouTvGLO8v-mHuiH0nkVgCs-0-4y2VHMg6iWOikGwcLQ8pqT3-D>

Optional - External Communication: MAX232. Although being able to check the value with a different device wasn't initially something we considered for the device, once Christopher brought it up as an option, we decided it would be something worth considering. External communication isn't currently a top priority for the device, but if we decide to implement it, we will use the MAX232 for its ability to translate the PIC's signals to outside devices that use different voltage levels, and also because we have an equivalent IC.

Datasheet:

https://www.ti.com/lit/ds/symlink/max232.pdf?ts=1758596594101&ref_url=https%253A%252F%252Fwww.google.com%252F

Additionally, we will be using an ICSP connector to be able program the uC while it's still in the circuit, and a 5V USB Power Supply since the PIC runs on 0-5V.

Schematic:

