Entry: 001 **Date:** 10/19/2009 **Version:** 1.00 **Title:** Initial Design

<u>Hardware Section:</u>
Microcontroller: A microcontroller with onboard USB and sufficient memory space for future code features is desired. For this, the **PIC18F25J50**, featuring 32k of flash and 2k of data memory, as well as onboard USB, will be used.
Power Source: A slim power source with sufficient capacity to run the onboard circuitry is desired. For this, a **CR2032** coin cell battery, providing 3V power and a 230mAh capacity, will be used.
LEDs: Generic surface mount LEDs
Switches: Generic tactile switches

<u>Firmware:</u> Version 1 will make use primarily of the timer0 peripheral to coordinate the LED pulses. For static timing purposes, it will be assumed that the POV will be moved repetitively through a linear path approximately 30" in length. POV characters will be stored in the onboard data EEPROM memory. Target frequency of operation is 8MHz.

<u>Pin Usage:</u> Of particular importance for the initial layout of the CardPOV, pins should be selected in such a way so as to not conflict with future pin needs. For this reason, pins that are needed for the USB, comparator, and ADC should not be used. Initial pin declarations are as follows:

Pushbutton 1: RC0 (pin 11)
Pushbutton 2 (available): RC1 (pin 12)
Pushbutton 3 (available): RC2 (pin 13)
POV LEDs: RB5-RB0, RC7, RC6 (pins 26-21, 18, 17)