ETEM 2520 - Design Lab 1

Project Proposal

Part Quantity Selector and Counter

Spring 2021

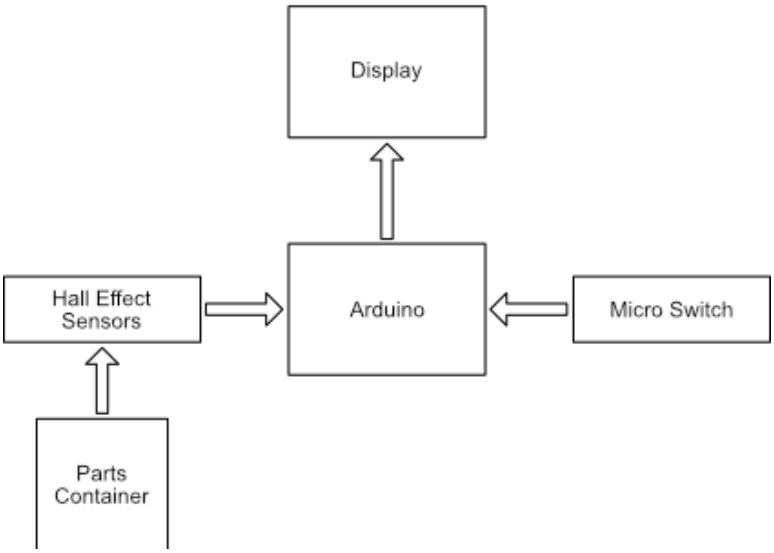
Proposal Abstract

The proposal for this design project is an automated system that selects the proper part quantity and then counts down as the parts are used. The system will have a display showing the remaining number of parts in the bin as well as indicate when the parts container is empty.

System Design Description

The system being proposed will consist of a microcontroller, display screen, micro switch, power switch, and hall effect sensors. Magnets attached to the parts containers will be sensed by the hall effect sensors which will tell the microcontroller the quantity of the parts which will be displayed on the screen. Every time the micro switch is triggered the microcontroller will decrement the total by one and update the display. The display will also indicate when the container is empty and will not reset until a new container is inserted into the system. The block diagram of the proposed system can be seen in Figure one.

Figure 1 - System Block Diagram



Bill of Materials

Item	Description	Qty.	Unit Price	Ext. Price
1	Teensy 3.2	1	$19.80	$19.80
2	I2C OLED Screen (Blue)	1	$4.99	$4.99
3	Micro Switch	1	$2.95	$2.95
4	Power Switch	1	$0.95	$0.95
5	Hall Effect Sensor	2	$0.36	$0.73
Total:				$29.42