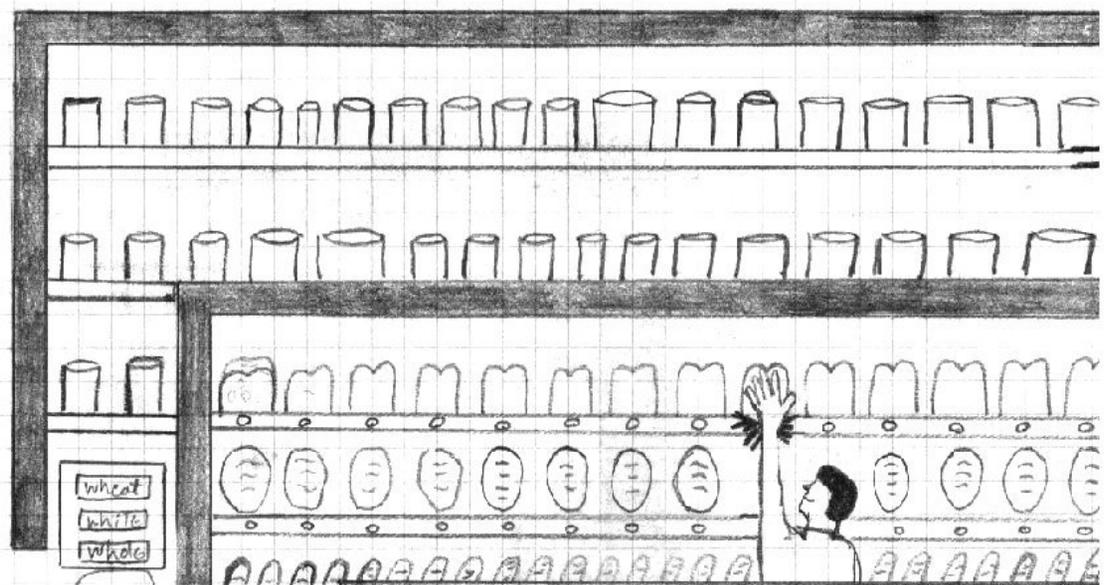
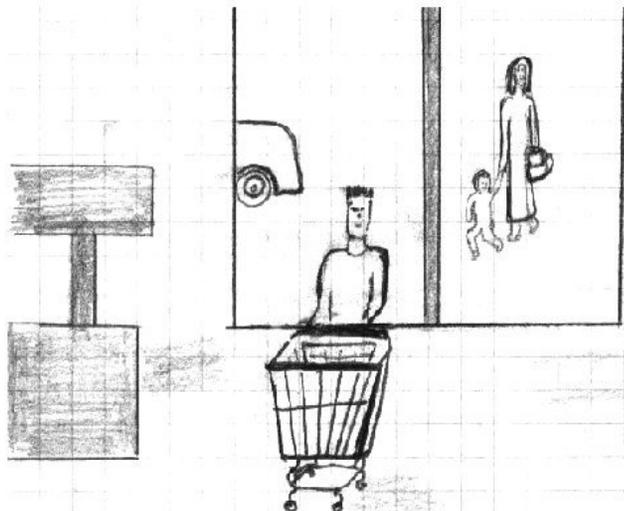


# Product Locator Inventory Kiosk (P.L.I.K)

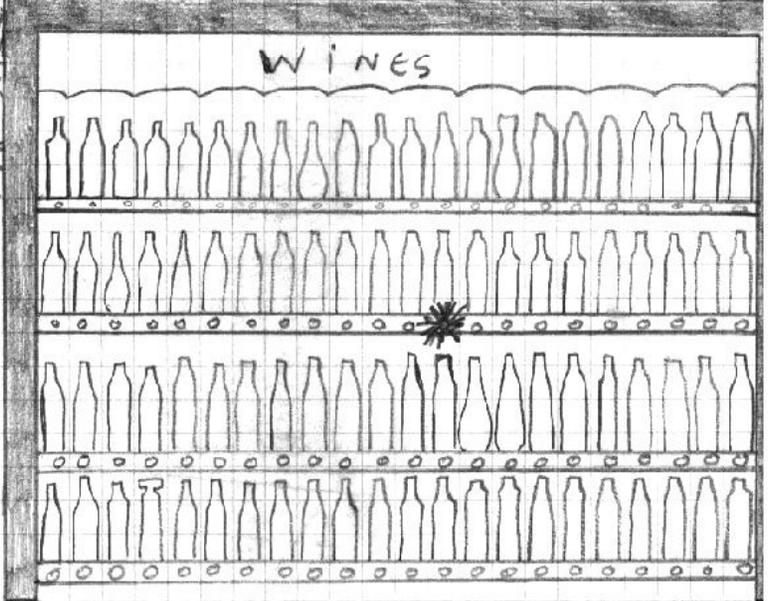
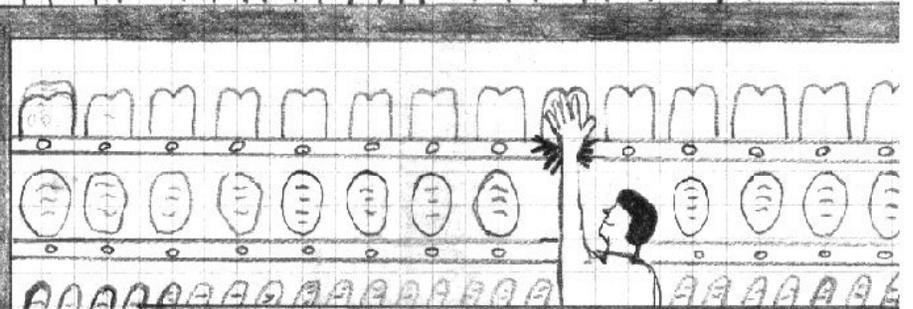
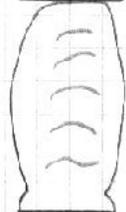
Senior Project  
ELET 4308-Sec 02  
Tyler Dresner  
Daniel Arango  
Edwin Gonzales  
Jared Morehead

# Outline

- Introduction: Jared Morehead
- Programming: Tyler Dresner
- Electrical: Edwin Gonzales
- Cost: Daniel Arango
- Post Development: Daniel Arango



wheat  
white  
whole



WINES

Cabernet  
Pinot  
Merlot  
Chardonnay

HERE  
LOOK  
FOR  
YOUR  
WINE



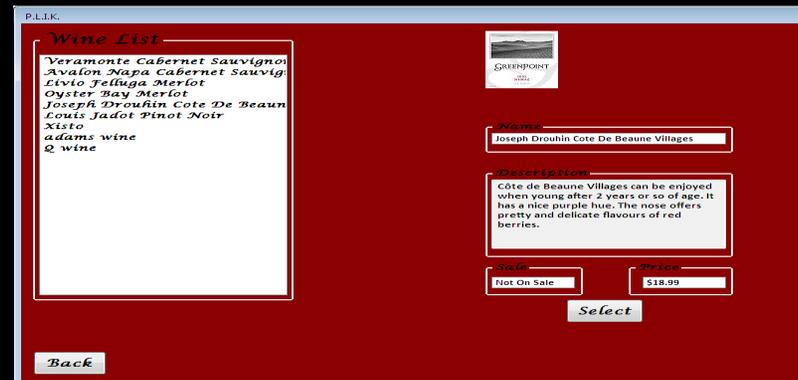
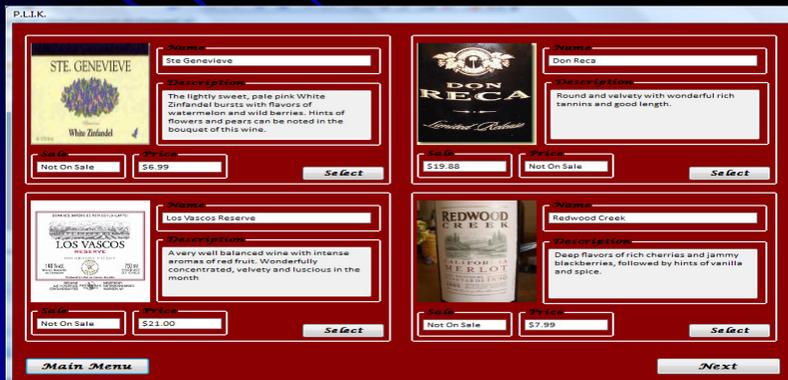
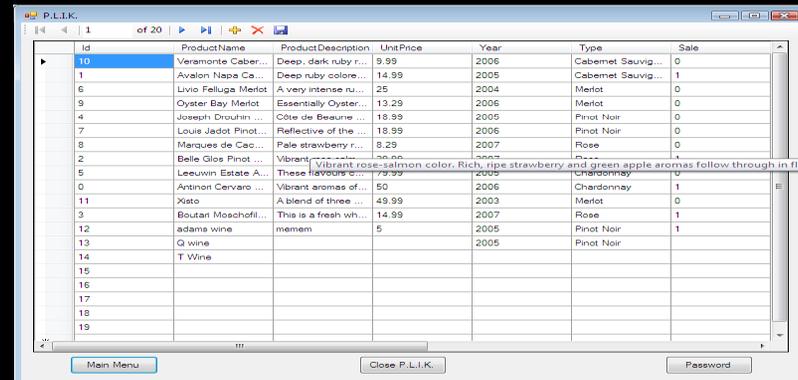
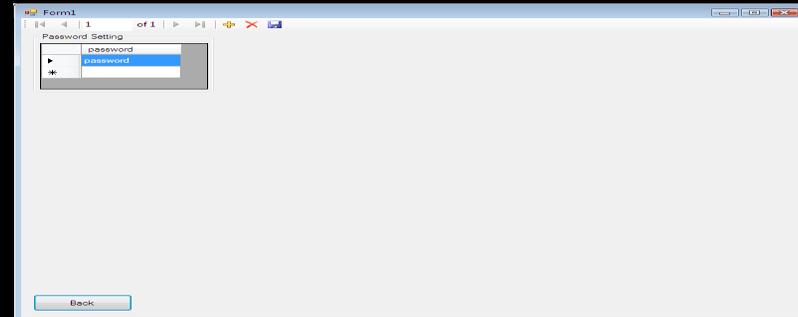
# Project Description

- Product Locator Inventory Kiosk prototype was built using the following components:
  - *A microcontroller*
  - *1 weight sensor*
  - *7 pressure sensors*
  - *8 voltage operational amplifier*
  - *A wooden shelf*
  - *7 LEDs*
  - *A basic PC*
  - *.NET*
  - *Touch screen monitor*

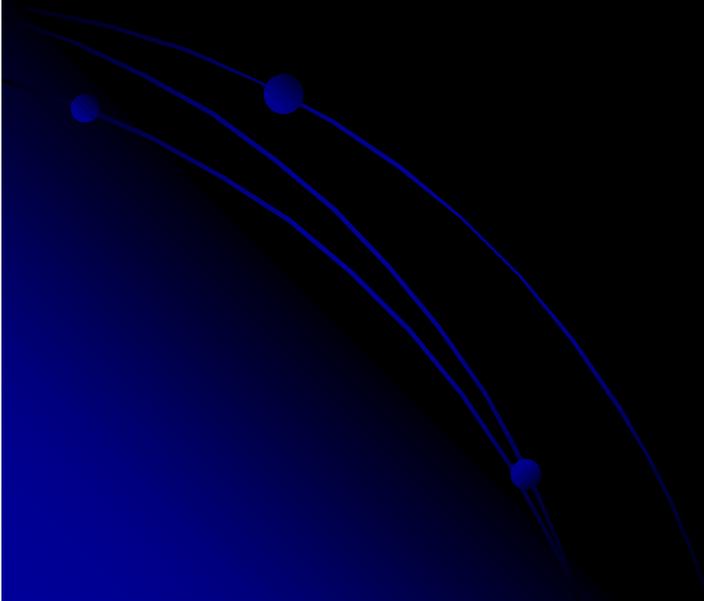
# Inventory Status Check

- Visual Menu Screen
  - Pictures of products
  - Product Information
  - Administration settings
    - Password
    - Inventory
- Basic
  - Uses pressure sensors
  - Read value > set value = In stock
  - Read value < set value = Out of stock
- **Inventory/Weight sensor**
  - **Uses simple calculation to confirm stock status**
- Search Menu
  - Uses filter in categories
  - ex. Country—Color—Year

# GUI interface



# Program Flowchart

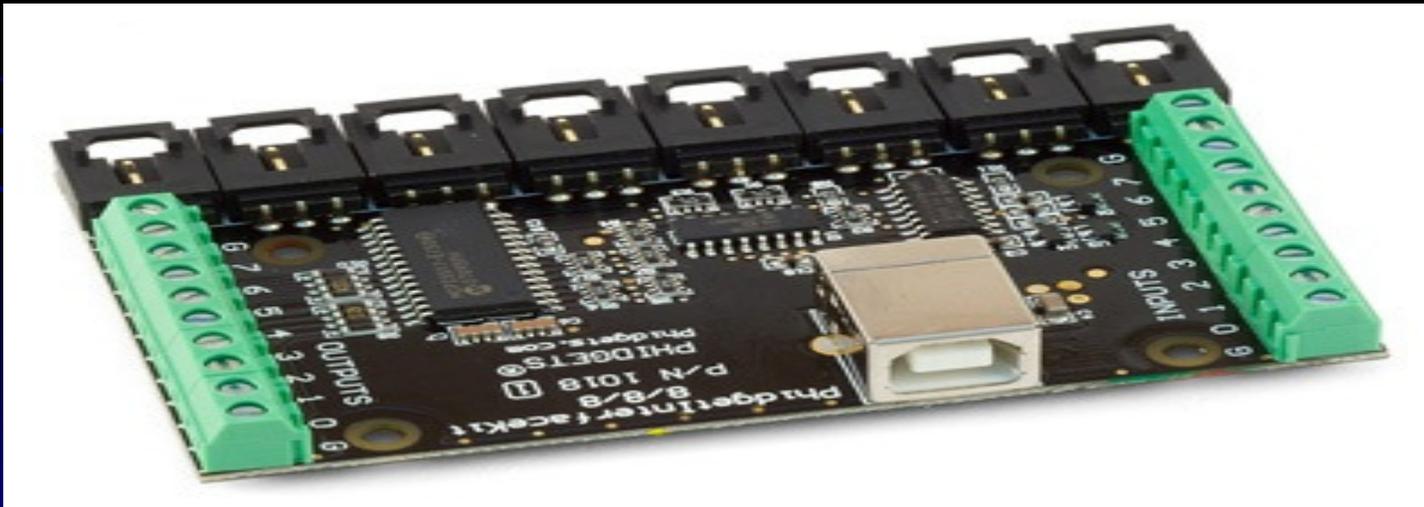


# Electric

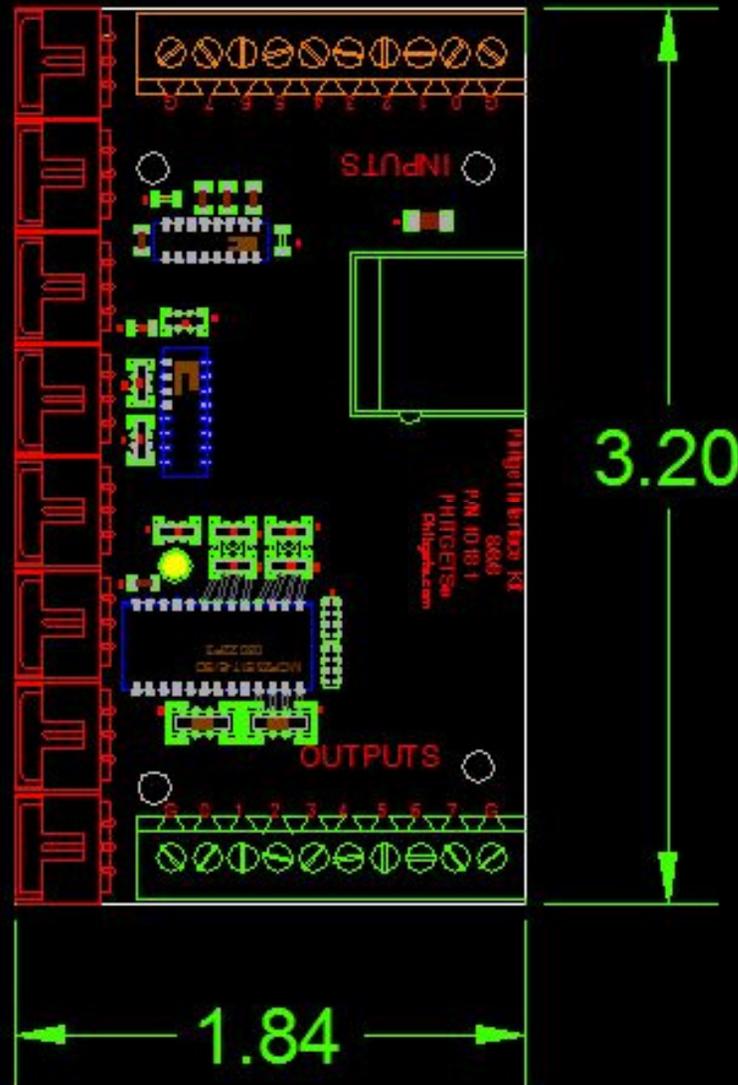
- 888 Microcontroller
- Flexiforce A201 Force Sensor
- Pressure sensor
- Voltage Divider
- Circuit Diagram

# 888 I/O Controller

- Phidget Interface Device
- Interfaces PC with Sensor
- USB
- 8 digital inputs
- 8 digital outputs
- 8 analog inputs



# I/O 888 Phidget Interface



# Flexiforce A201 Weight sensor

- Acts as a force sensing resistance
- It can be incorporated into a force-to-voltage circuit
- 0-25 lbs
- +/- 5% error
- Because of its flexibility, it can be easily modified

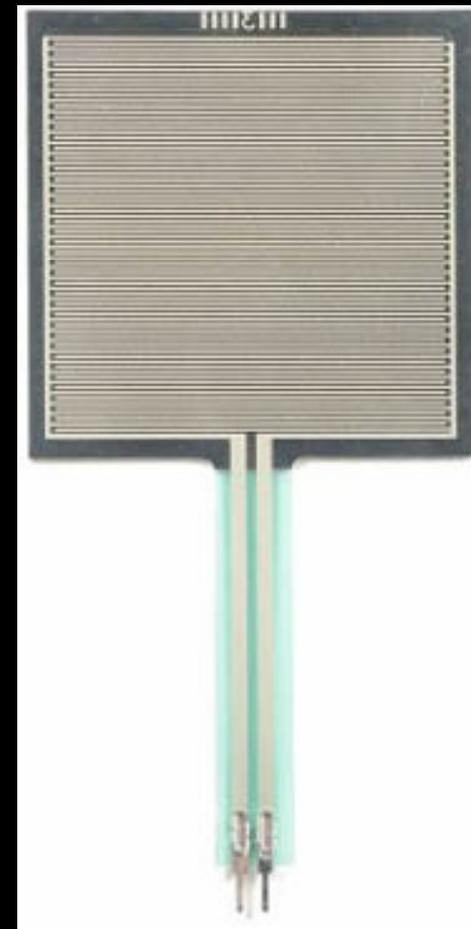


# Weight Sensor

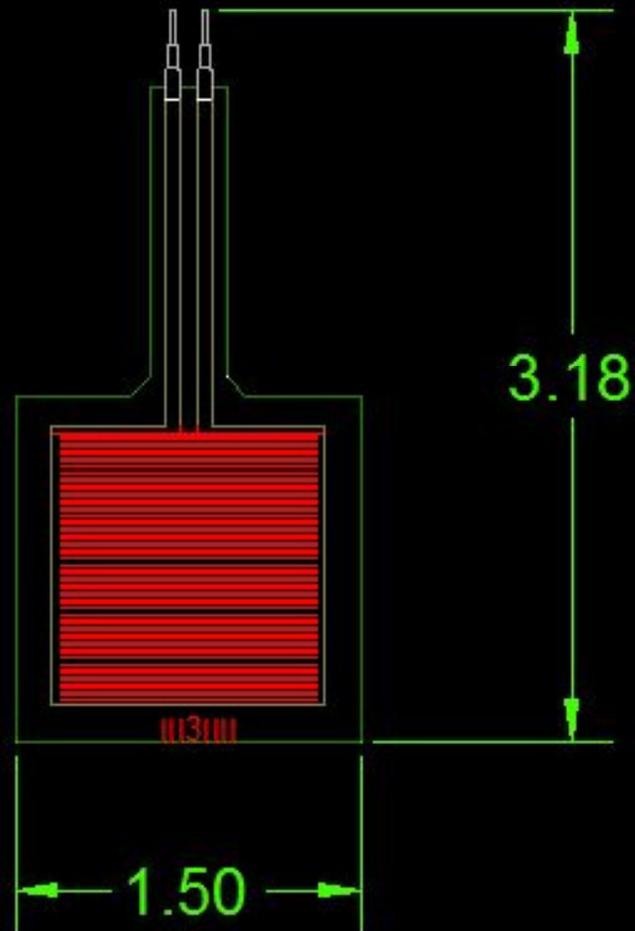


# Force Sensing Resistor

- Sensing area width:  
1.5"  
Total width: 1.75"  
Length: 3.5"
- Used to measure force in order to detect presence.

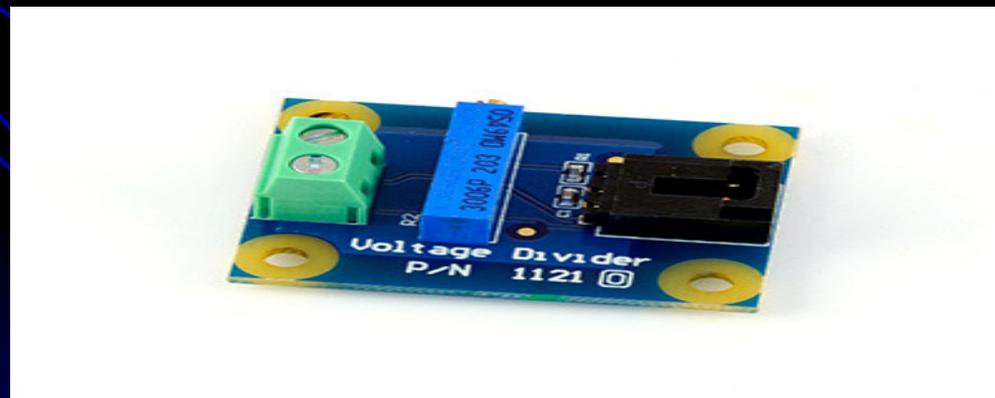


# Force Sensor

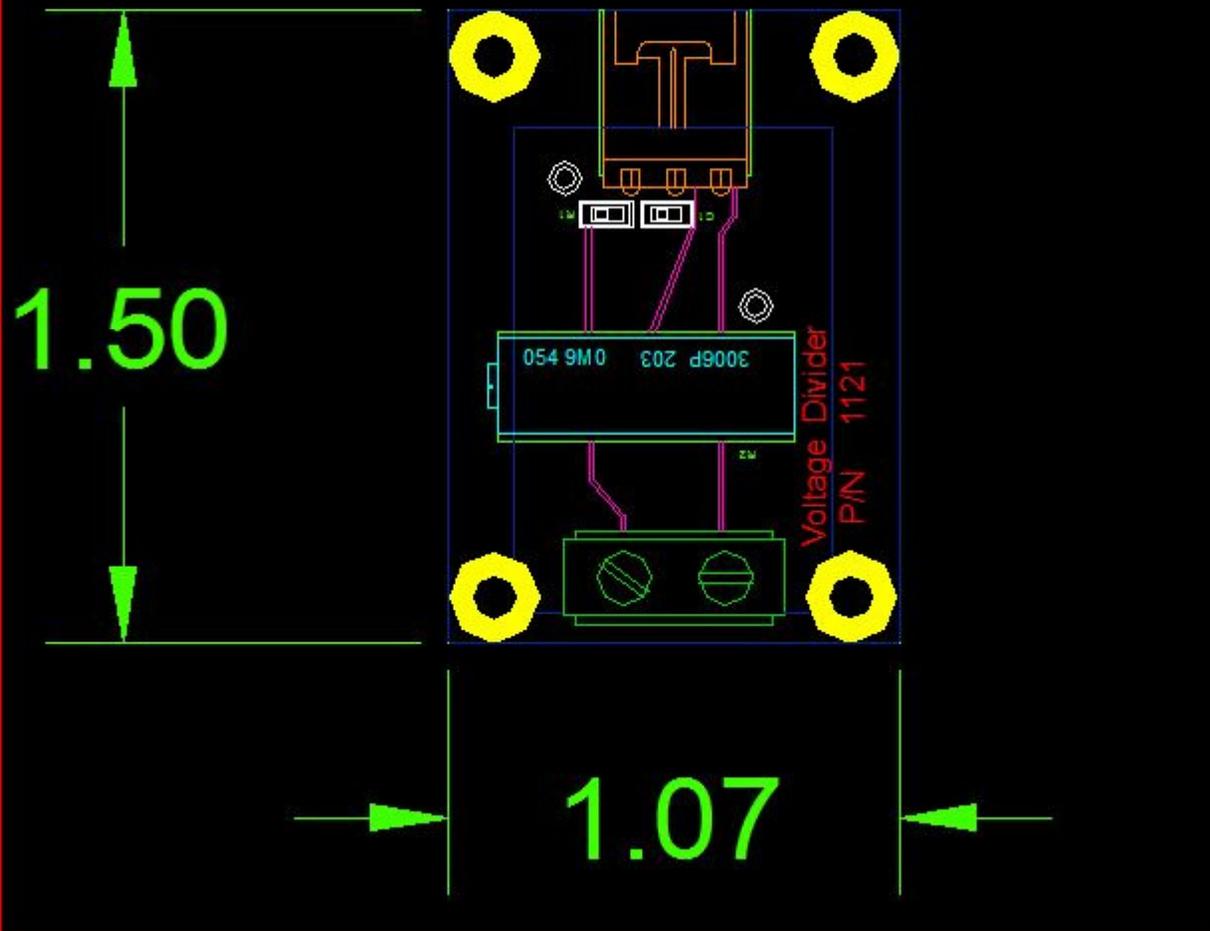


# Voltage Divider

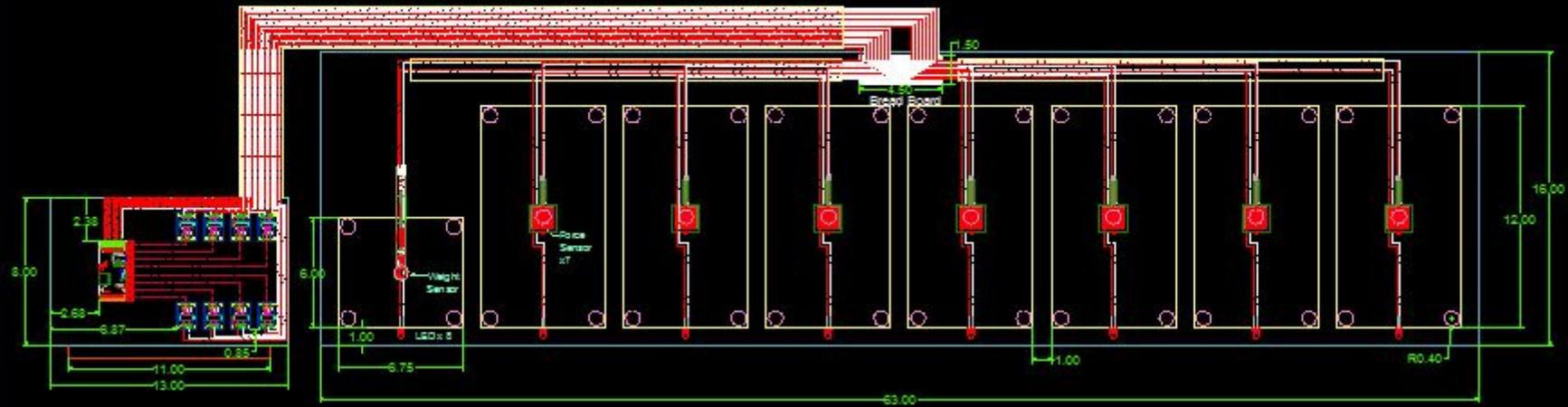
- Uses a high precision potentiometer on the board to allow the adjustment/offset of the force sensor.
- Eliminates the need of an analog op amp circuit.
- The sensor is Ratiometric.



# Voltage Divider



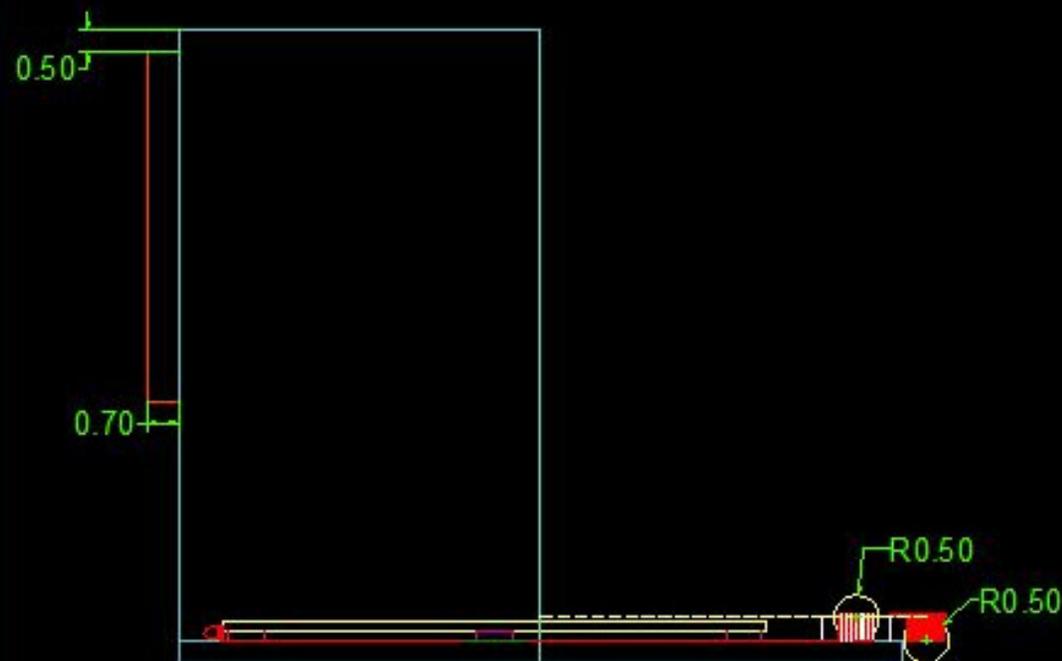
## Top View



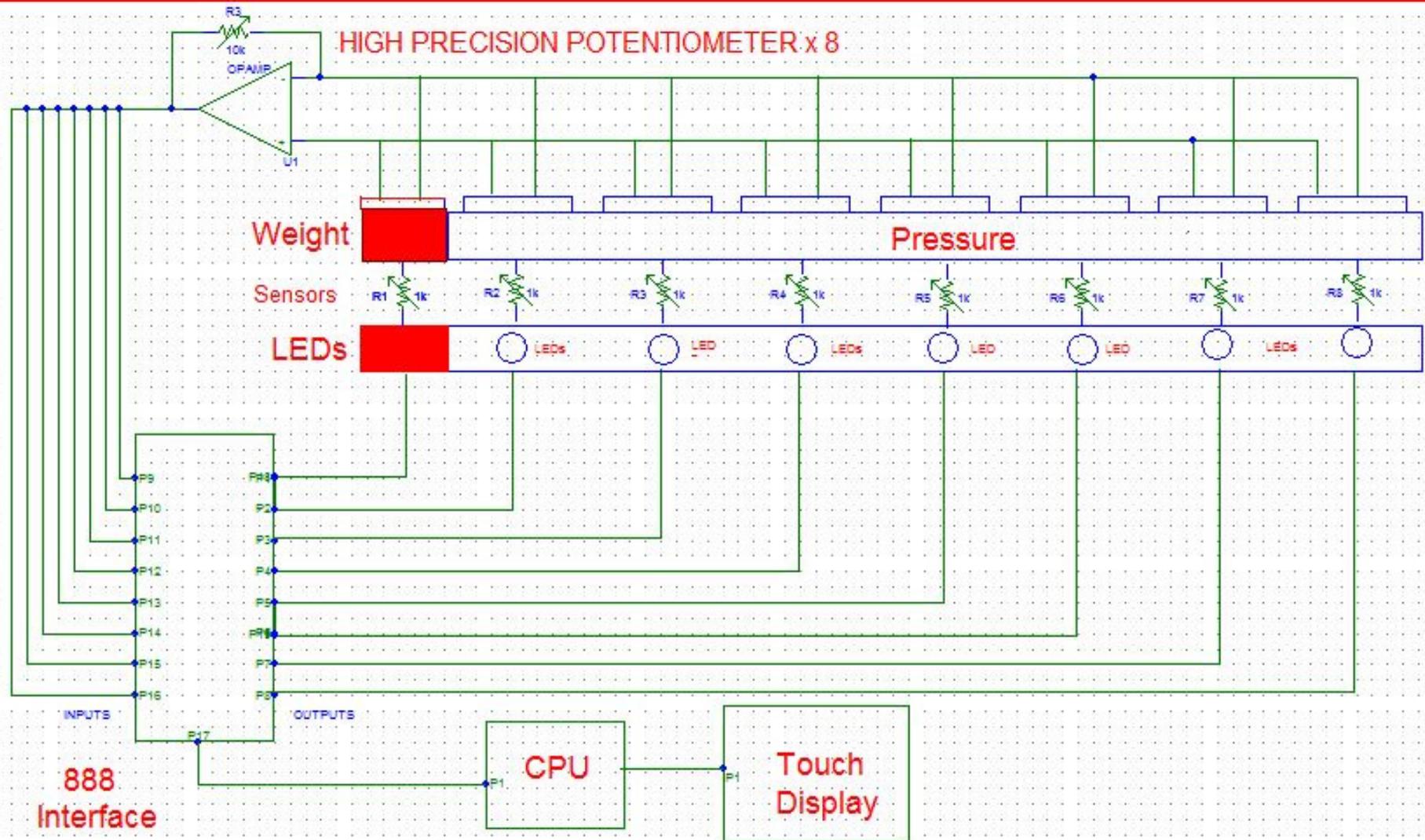
## Front View



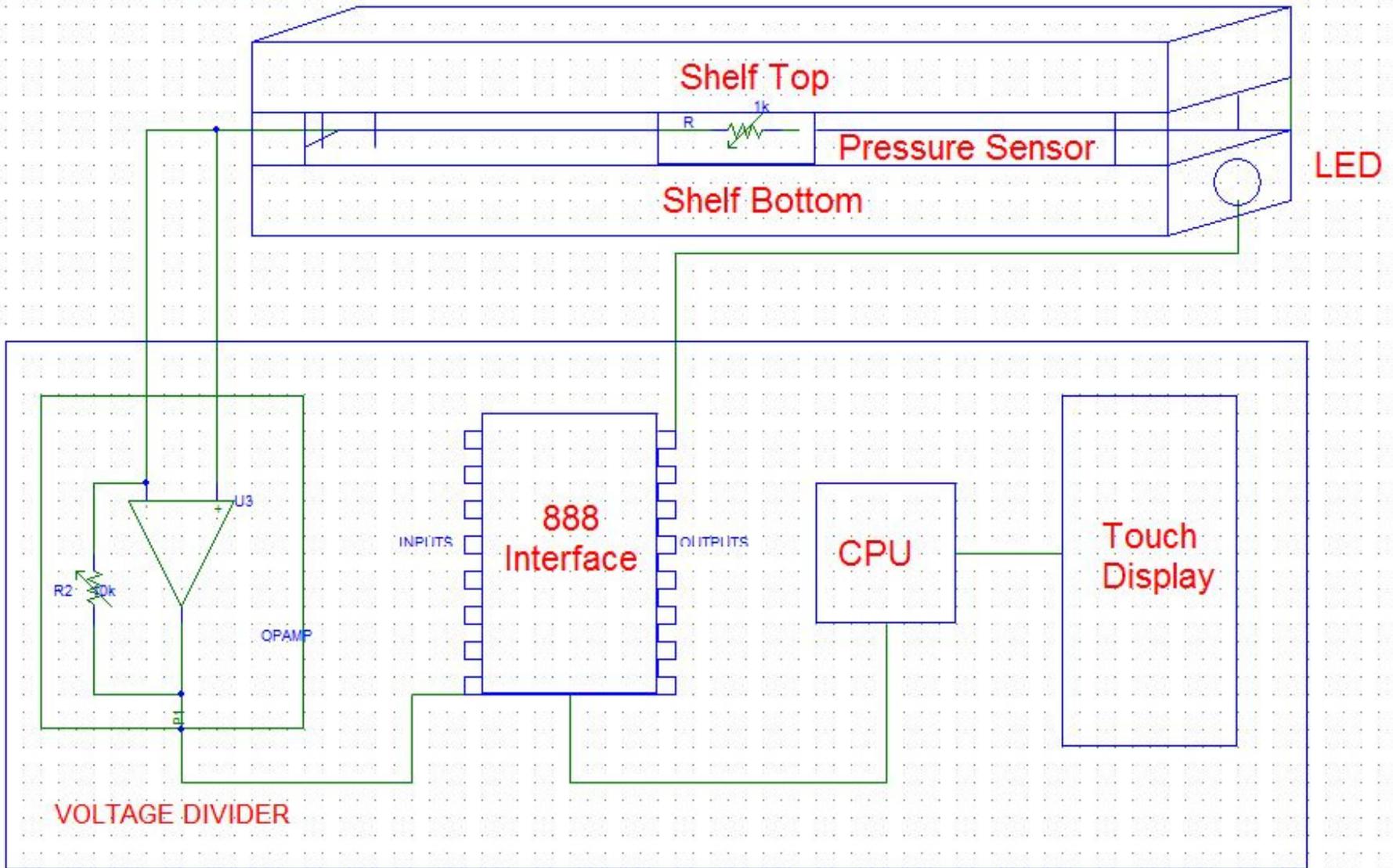
# Right Side View



# Circuit Prototype



P.L.I.K Complete Circuit Design



Single pressure sensor shelf schematic

# Cost

| Item                                                  | Cost    | Shipping | Qty. | Total    | Budget left |
|-------------------------------------------------------|---------|----------|------|----------|-------------|
| InterfaceKit 8/8/8                                    | \$68.00 | \$16.03  | 1    | \$84.03  | \$265.97    |
| nut/bolt combo                                        | \$0.40  | \$0.00   | 4    | \$1.60   | \$264.37    |
| Bumper Recessed<br>5/8"                               | \$2.95  | \$0.00   | 1    | \$2.95   | \$261.42    |
| Bumper Recessed<br>1/2"                               | \$2.95  | \$0.00   | 1    | \$2.95   | \$258.47    |
| Chemical Super Glue<br>18oz                           | \$3.95  | \$0.00   | 1    | \$3.95   | \$254.52    |
| LED light Super bright                                | \$1.40  | \$0.00   | 1    | \$1.40   | \$253.12    |
| EPO discount                                          | -\$1.93 | \$0.00   | 1    | -\$1.93  | \$255.05    |
| 1.5 Inch FSR Kit                                      | \$16.40 | \$7.99   | 6    | \$106.39 | \$148.66    |
| FlexiForce 0-25 lbs.<br>Resistive Force<br>Sensor Kit | \$24.40 | \$0.00   | 1    | \$24.40  | \$124.26    |
| Washer                                                | \$0.10  | \$0.00   | 60   | \$6.00   | \$118.26    |
| Screws                                                | \$0.10  | \$0.00   | 30   | \$3.00   | \$115.26    |
| LED light Super bright                                | \$1.40  | \$0.00   | 2    | \$2.80   | \$112.46    |
| EPO discount                                          | -\$1.77 | \$0.00   | 1    | -\$1.77  | \$114.23    |
| Irwin 10" saw                                         | \$12.97 | \$0.00   | 1    | \$12.97  | \$101.26    |
| Plastic .220 18x24                                    | \$13.49 | \$0.00   | 4    | \$53.96  | \$47.30     |
| Bumper Recessed<br>1/2"                               | \$35.86 | \$5.72   | 1    | \$41.58  | \$5.72      |
| Wood                                                  | \$0.00  | \$0.00   | 1    | \$0.00   | \$5.72      |

# Post Development Features

- Networked kiosks to collect all inventory data to be viewed and maintained by a central server.
- Maintaining security integrity: Tracking items removed by shelves.