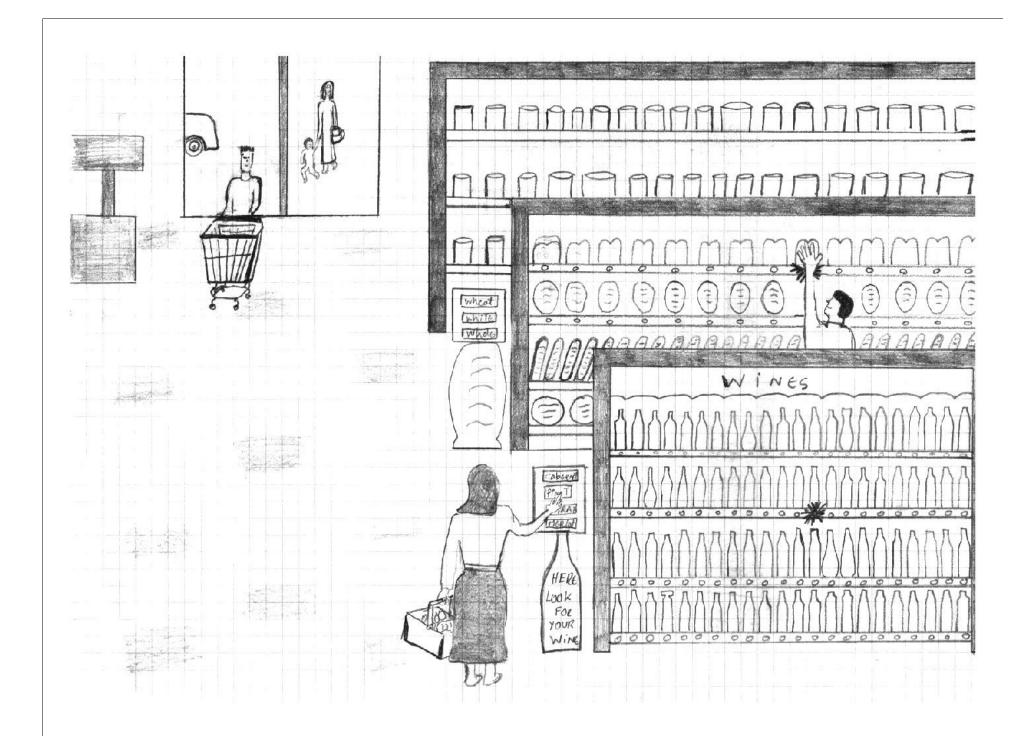
## Product Locator Inventory Kiosk (P.L.I.K)

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



### **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

P.L.I.K.	P Form1
P.C.I.K.	4 4  1 of1   > >   💠 🔀 🔜
	Password Setting
	browseag
Select Wines	
Browse Wines	
and the second	
	Deck
P.L.I.K.	P.I.I.K.
Make Your Wine Selections	4 4   1 of 20   ▶ ▶      + × 🖬
Categories	Id         ProductName         ProductDescription         UntPrice         Year         Type         Sale           10         Veramonte Caber         Deep, dark ruby r         9.99         2006         Cabernet Sauvig         0
c Color c Pairing c Alphabet	1 Avalon Napa Ca Deep ruby colore 14.99 2005 Cabemet Sauvig 1
Red Pork A N	6 Uvio Felluga Meriot A very intense ru 25 2004 Meriot 0
White Chicken B O	9         Oyster Bay Meriot         Essentially Oyster         13.29         2006         Meriot         0           4         Joseph Drouhin         Côte de Besume         18.99         2005         Pinot Noir         0
Type Red Meat C P	7 Louis Jadot Pinot Reflective of the 18.99 2006 Pinot Noir 0
Chardonnay Fish D Q	8         Margues de Cac         Pale strawbenry r         8.29         2007         Rose         0           2         Belle Glos Pinot         Vibrant reconciler         39.99         399.7         0         1
Cabernet Sauvignon Year E R Rose 7000 F S	8         Marques de Cas         Pale stravbemy r         8.23         2007         Rose         0           2         Belle Gios Proton         Wbrant rose-saltmon color. Rich, ripe stravberry and green apple aromas follow through in flag         5         Leeuwin Estate A         These flags for green apple aromas follow through in flag
	0 Antinori Cervaro Vibrant aromas of 50 2006 Chardonnay 1 E
Pinot Noir     2001     G T      Merlot     2002     H U	11         Xisto         A blend of three         49.99         2003         Meriot         0           3         Boutari Moschofiliu         This is a fresh whull         14.99         2007         Rose         1
	12 adams wine memer 5 2005 Pinot Noir 1
Country 2003 United States	13 Q wine 2005 Pinot Noir
	14 T Wine 15
	16
🗖 New Zealand 🖉 🗖 2007 👘 M 🖷 Z	
Chile 2008	10 19 19
Main Menu Results	
	Main Menu Close P.L.I.K. Password
PLLK.	P.L.I.K.
	Wine List
APPLOPUELUEUE Ste Genevieve	
STE. GENEVIEVE	Veramonte Cabernet Sauvignon Avalon Napa Cabernet Sauvign Louis Tellung Avalor
The lightly sweet, pale pink White The lightly swee	Oyster Bay Merfot
The lightly sweet, pale pink White The lightly swee	Joseph Drouhin Cote De Beaun Louis Jadot Pinot Noir
Whe Jinned Towers and pears can be noted in the bouquet of this wine.	Xisto Adams wine Joseph Drouhin Cote De Beaune Villages
	Q wine
Not On Sale 56.99 Select S19.88 Not On Sale Select	Description
	Côte de Beaune Villages can be enjoyed when young after 2 years or so of age, it
	has a nice purple hue. The noise offers pretty and delicate flavours of red
Interal person and the second	berries.
LOS VASCOS MELENY RESERVE A very well balanced wine with intense A very well balanced wine with intense A very well balanced wine with intense	
INITIAL Work         Note of the state	SalePrice
Automatication and a spece	Not On Sale \$18.99
	Select
Sale         Price           Not On Sale         \$21.00           Sale         \$7.99	Select
Not On Sale 57.99 Select	
	Back
Main Menu Next	

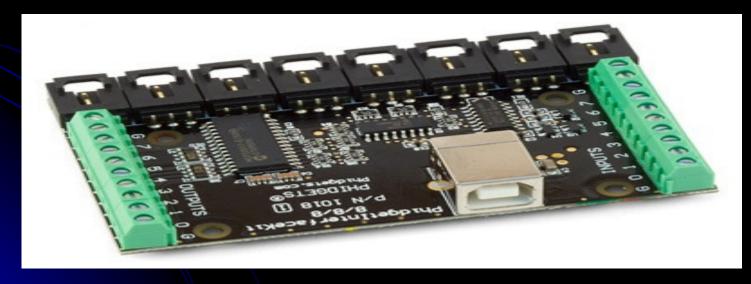
# Program Flowchart

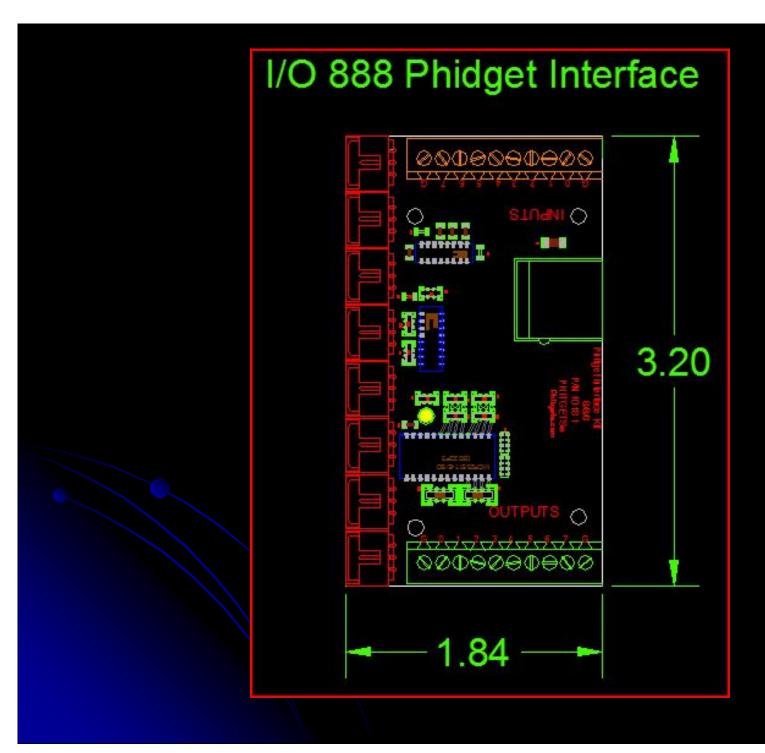
#### Electric

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

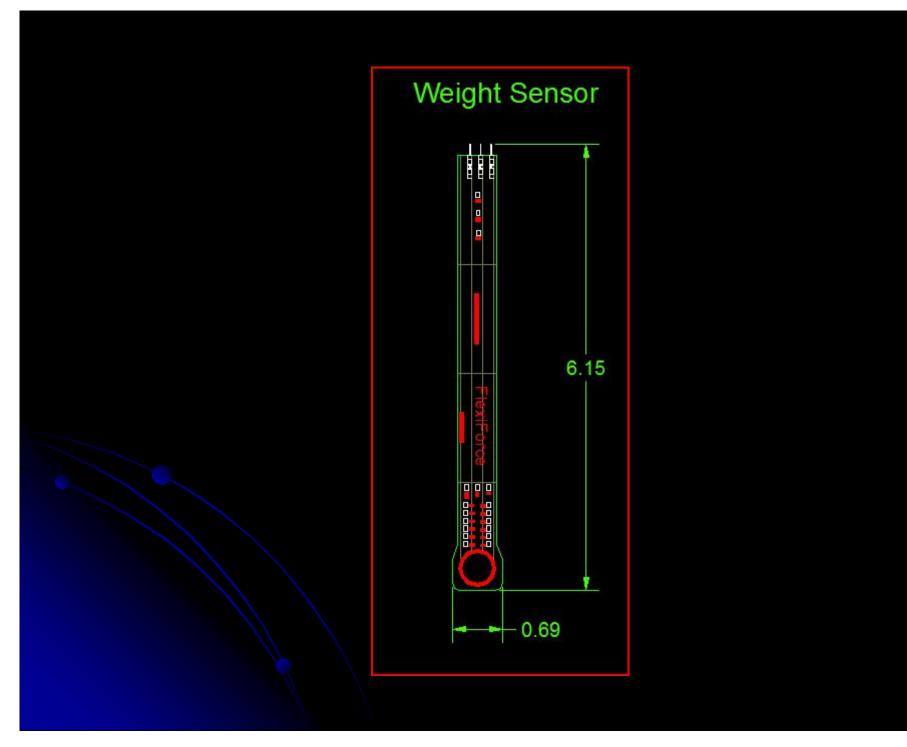




### Flexiforce A201 Weight sensor

- 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

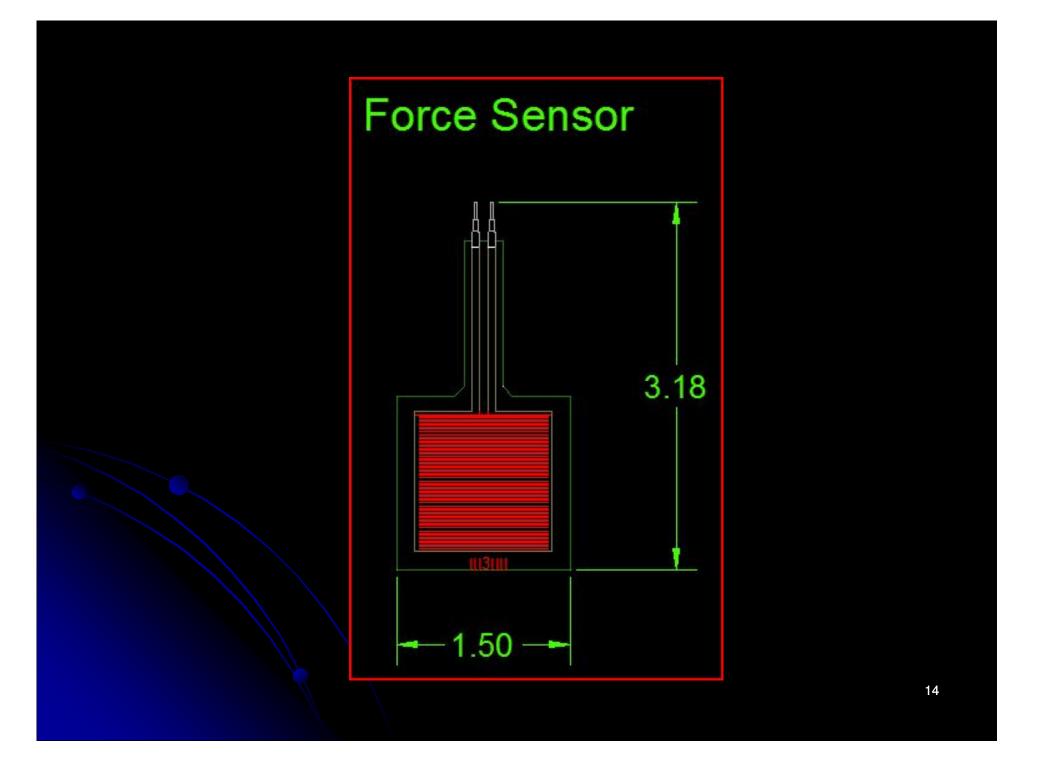




#### Force Sensing Resistor

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

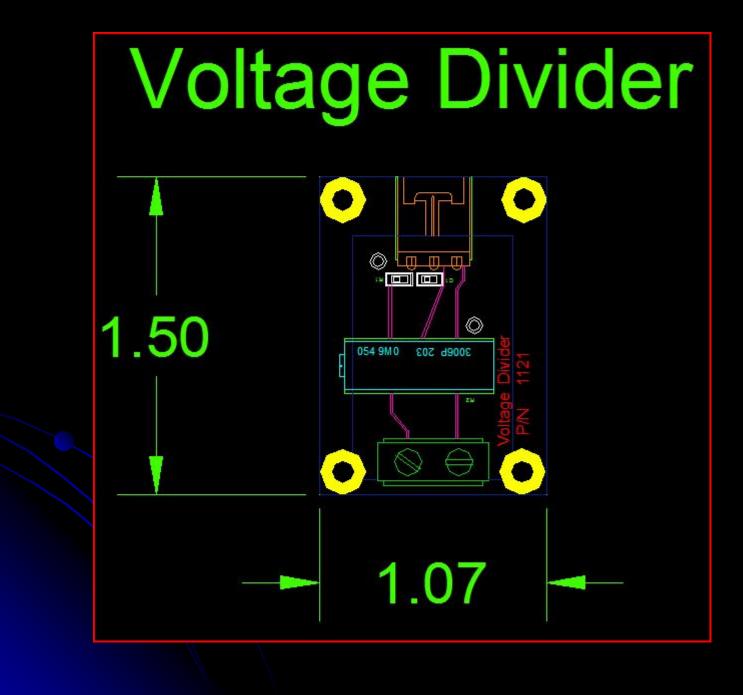


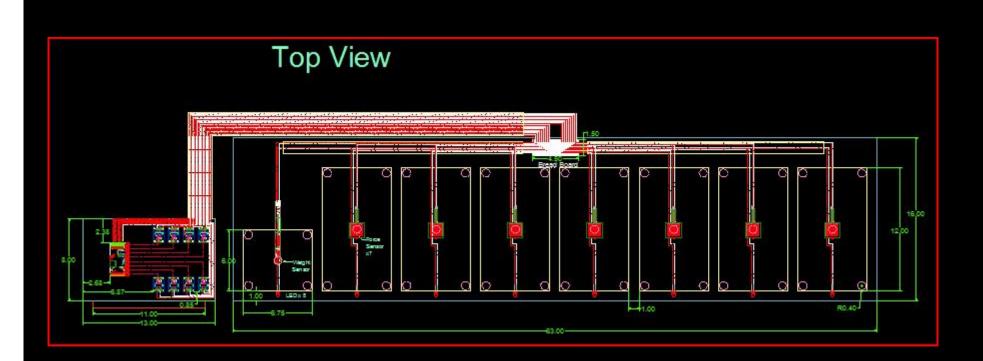


#### Voltage Divider

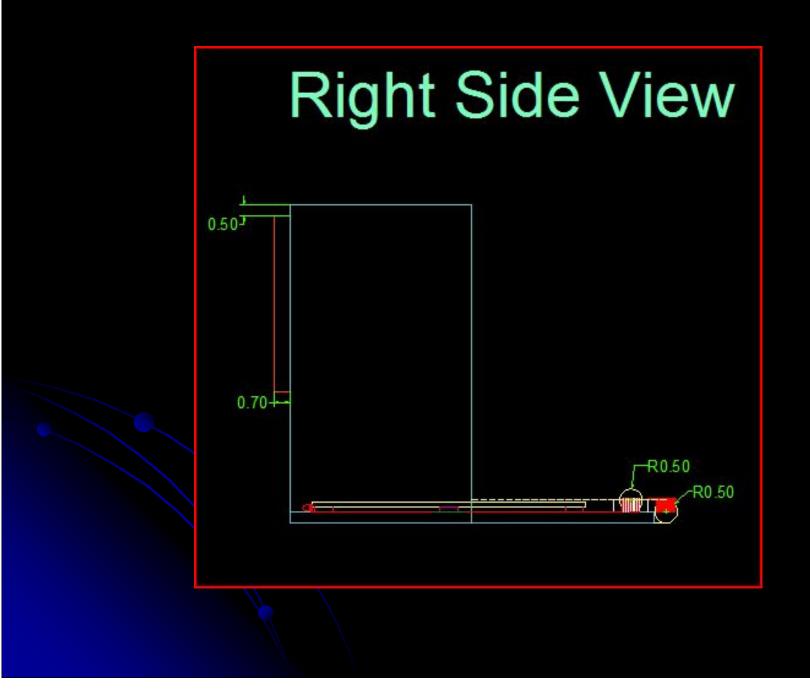
- Uses a high precision potentiometer on the board to allow the adjustment/offset of the force sensor.
- Eliminates the need of an analog op amp circuit.
- The sensor is Ratiometric.



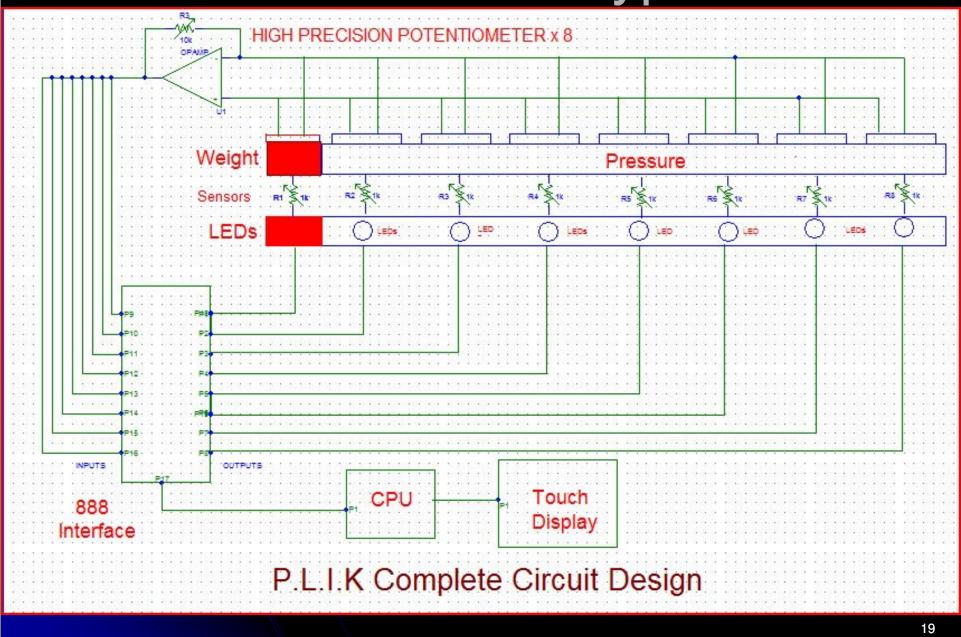


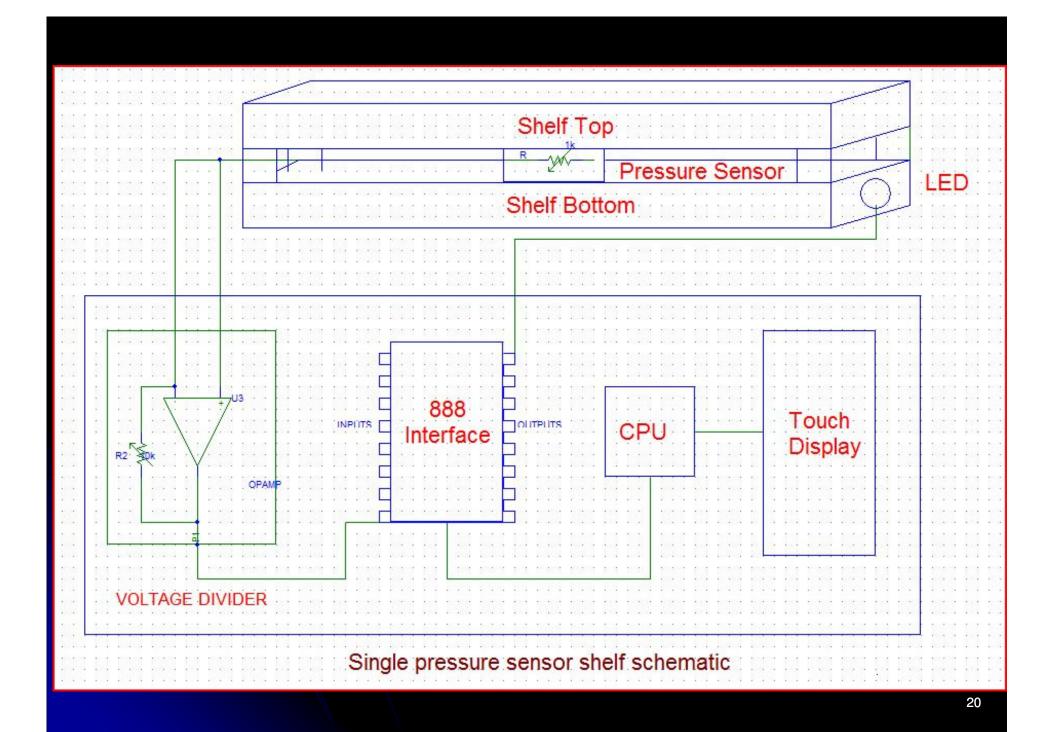






#### Circuit Prototype





#### Cost

ltem	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 5/8"	\$2.95	\$0.00	1	\$2.95	\$261.42
Bumper Recessed 1/2"	\$2.95	\$0.00	1	\$2.95	\$258.47
Chemical Super Glue 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. Resistive Force					
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 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.