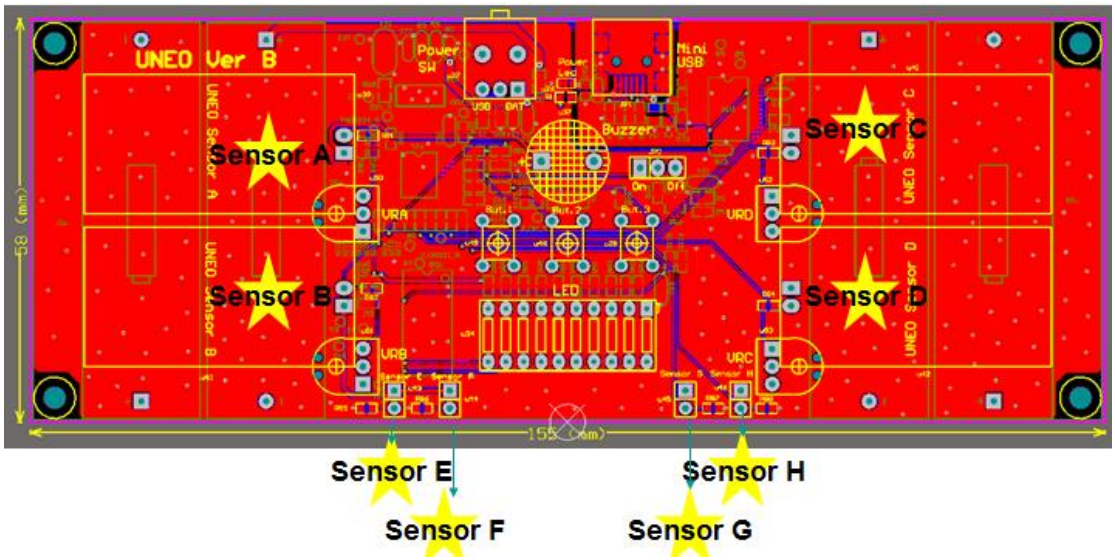
8-Channel Resistive Force Sensor Demo Kit

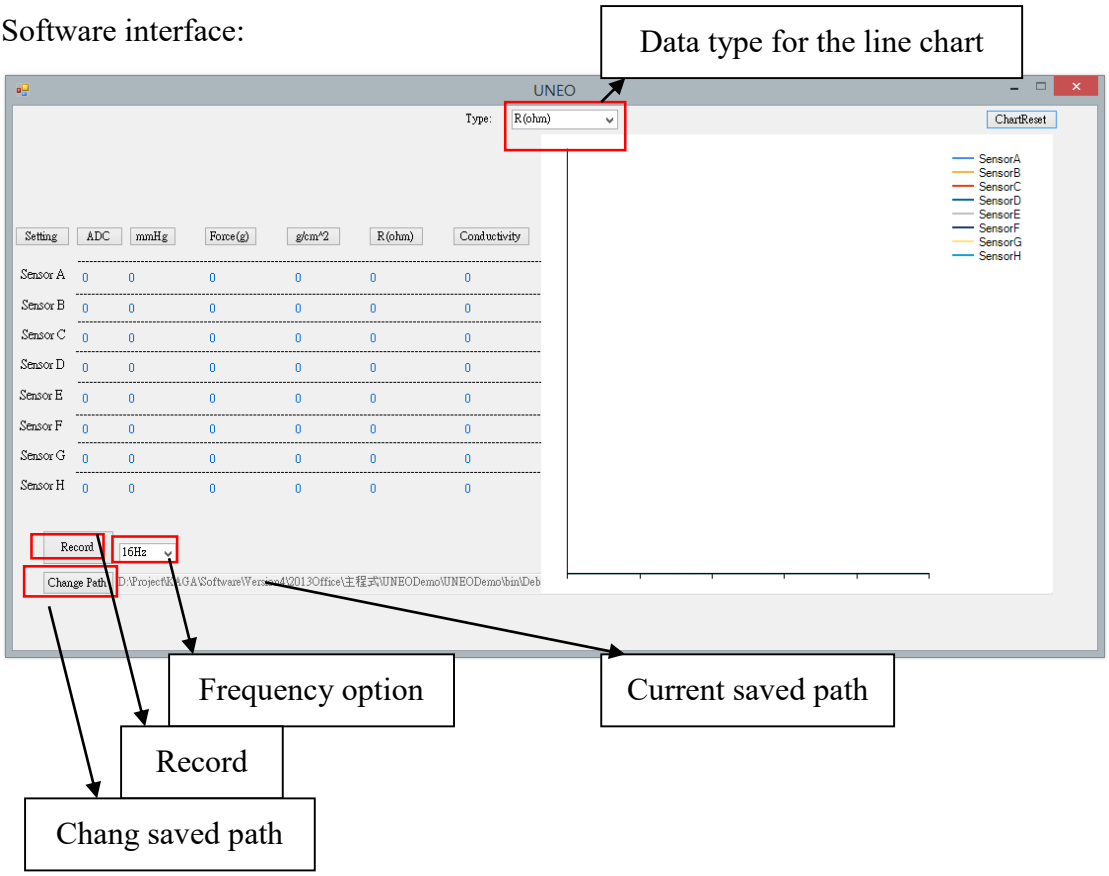
Demo Kit Software Download link:
http://files.uneotech.com:8080/share.cgi?ssid=05hPvnh

Hardware spec:58mm x 155mm



4-Channel VR100K Resistor (Sensor A / Sensor B / Sensor C / Sensor D)
4-Channel Fixed 10K Resistor (Sensor E / Sensor F / Sensor G / Sensor H)

Software interface:

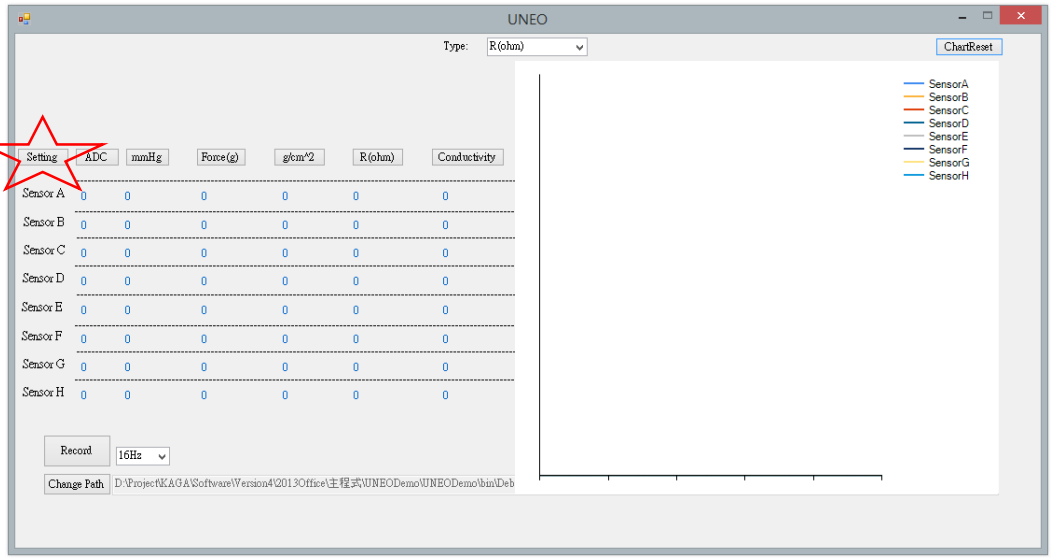


There are five different data types for the line chart (mmHg; Force(g); g/cm^2; R(ohm); Conductivity) and the line chart image on the software interface can be saved.

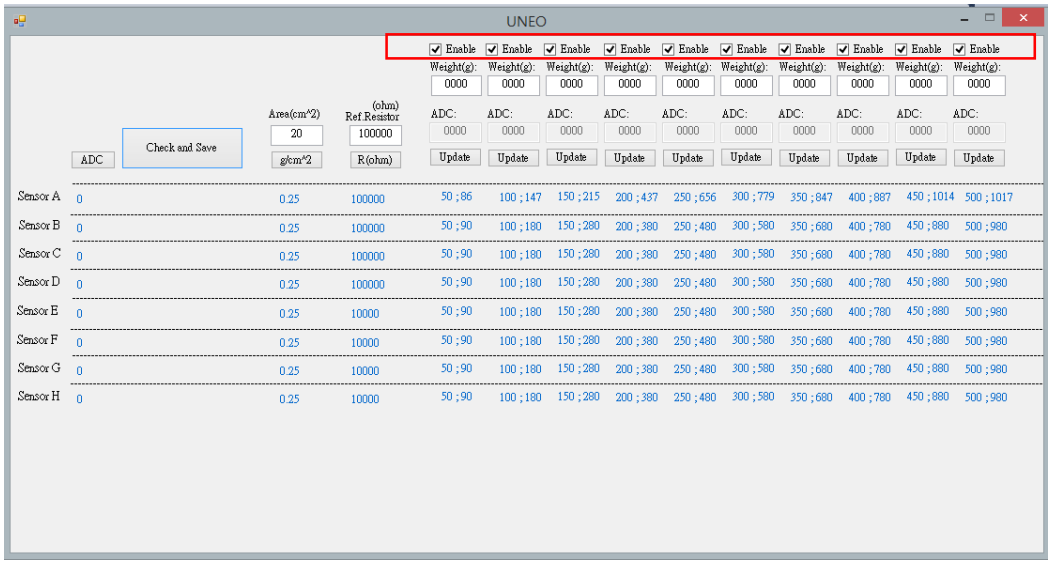
Since the value of each data types (mmHg; Force(g); g/cm^2; R(ohm); Conductivity) should be computed through the value of ADC to find out their relationship, so setting in advance is required when first time use the demo kit and software.

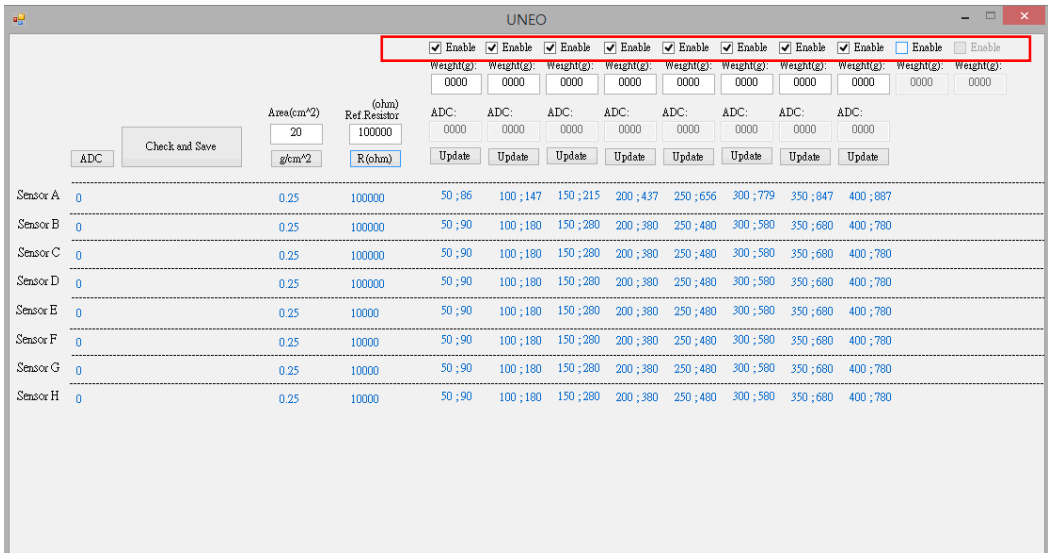
Software setting function:

Step 1: click "Setting", then enter the operation interface .

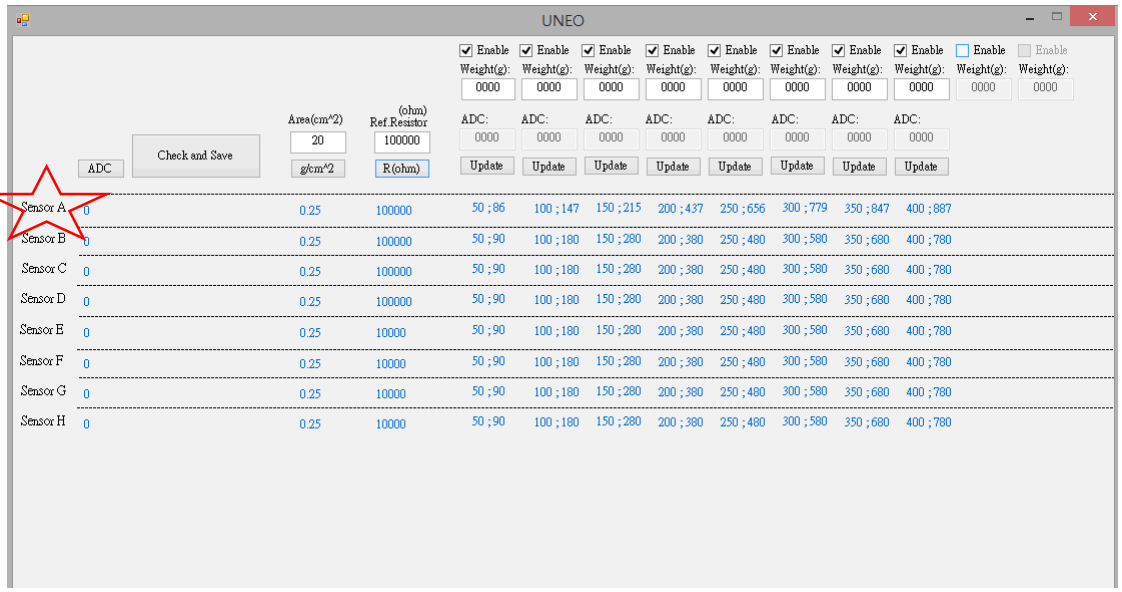


Step 2: Choose the quantity of weight that needs to be calibrated.

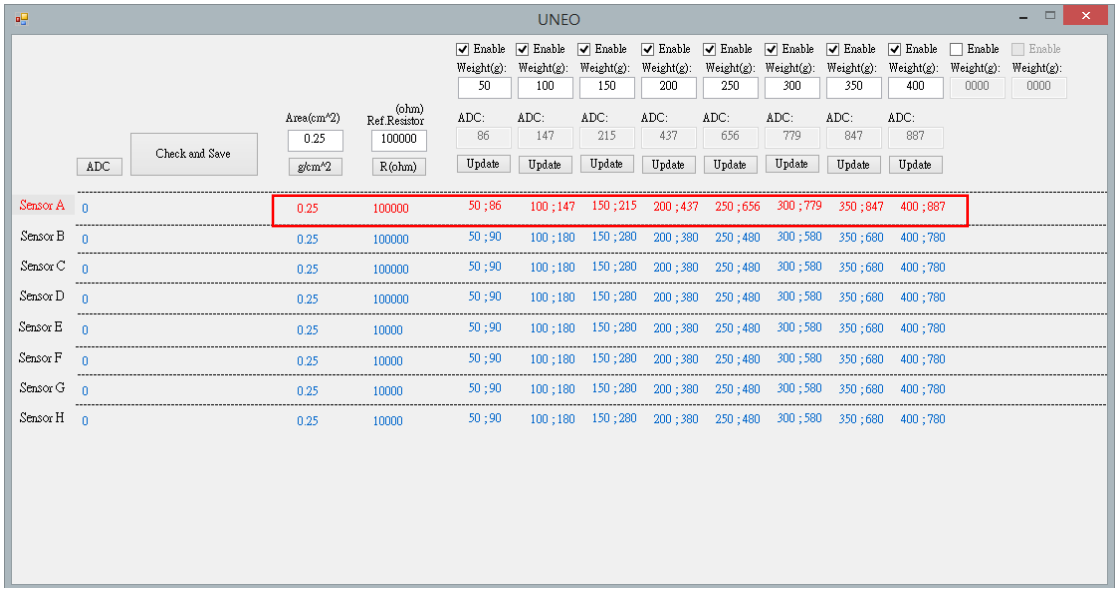




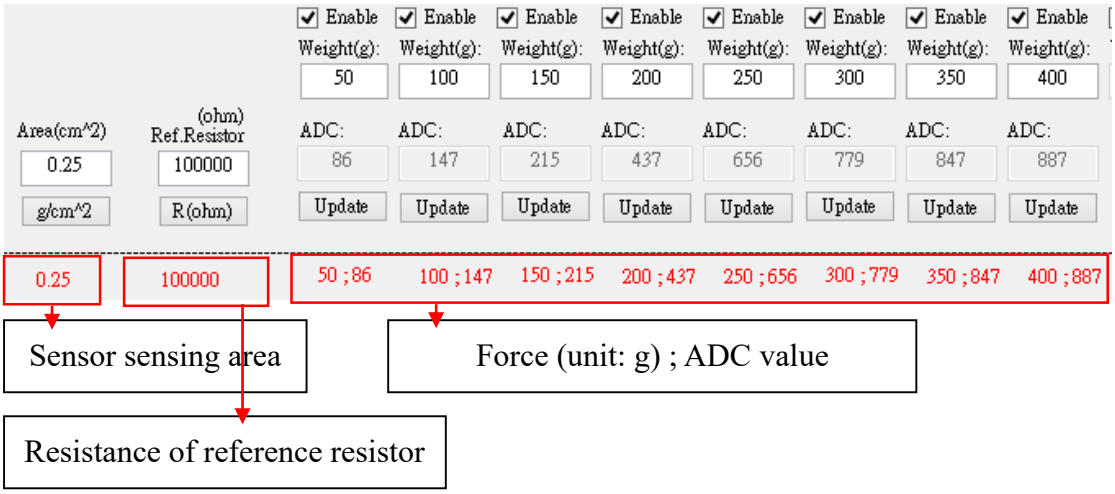
Step 3: click channel to do calibration (only can calibrate one channel each time)

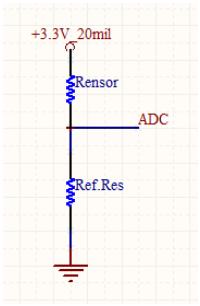


Channel you chose will display red.



Calibrated information:





解析資料:

ADC can measure voltage from voltage divider circuit. In order to get the resistance of sensor, please refer to below formula:

Rsensor = Ref.Res *{[(ADC full level)-ADC]/ADC}

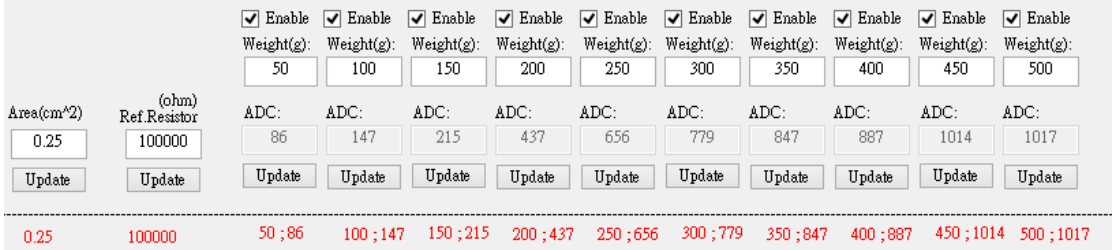
Uneo sensor have linear relationship between Conductivity and Force, so need to get the conductivity first, then calculate the force.

There are 8 channels in one demo kit. 4 Ref.Res for Variable resistance+Fixed resistance and 4 RefRes for only Fixed resistance.

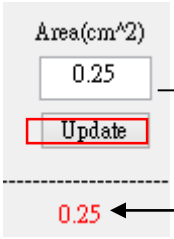
For example, Ref.Res is 100K and ADC value is 256, so
Rsensor = 100K * (1023-256)/256 ==> Rsensor is 300K

Resistance / Conductivity: Use ADC value and RefRes to find out
Pressure: Use Force(g) to construct a linear equation with one variable, and find the pressure value by current Conductivity.
mmHg / g/cm^2: Use Sensor Sensing Area and Force(g) to find out pressure.

Step 4: Update “Sensor Area/ Ref. resistance/ Force/ ADC value”

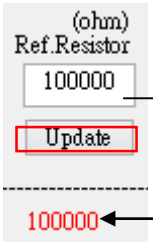


Update Sensor area size:



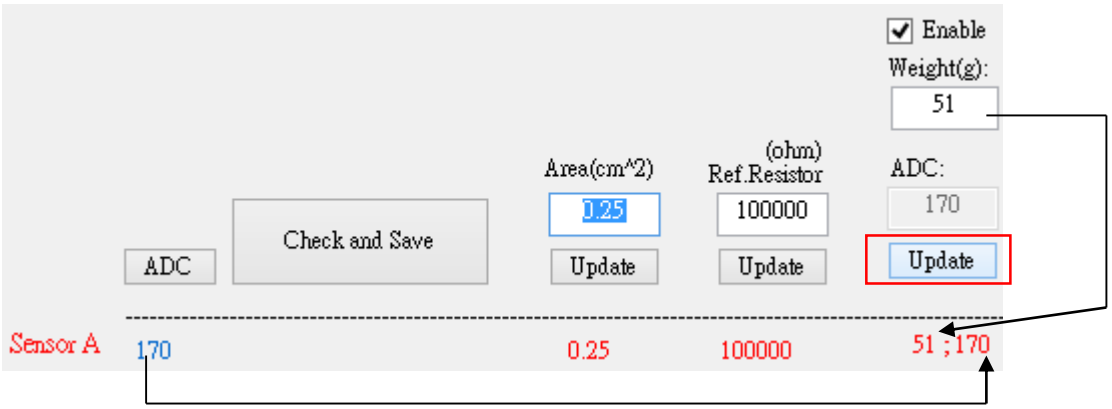
Click "Update":
Update above area size to below channel which was selected.

Update Ref. resistance:



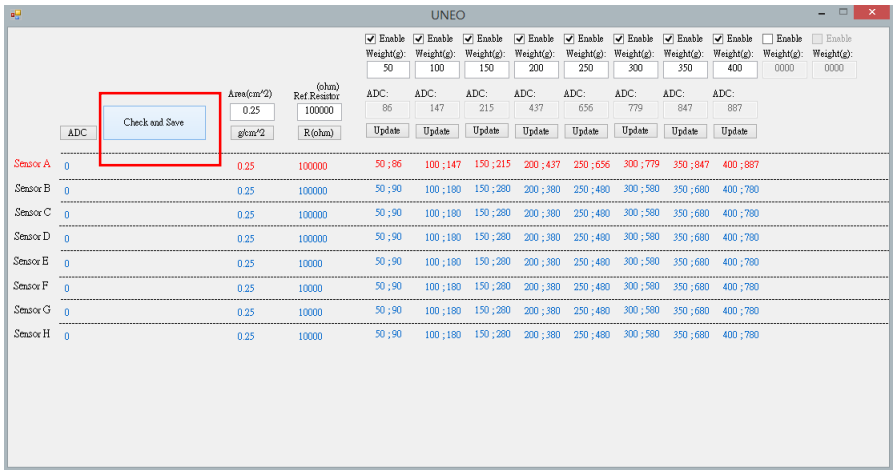
Click "Update":
Update above resistance value to below channel which was selected.

Update force and ADC:

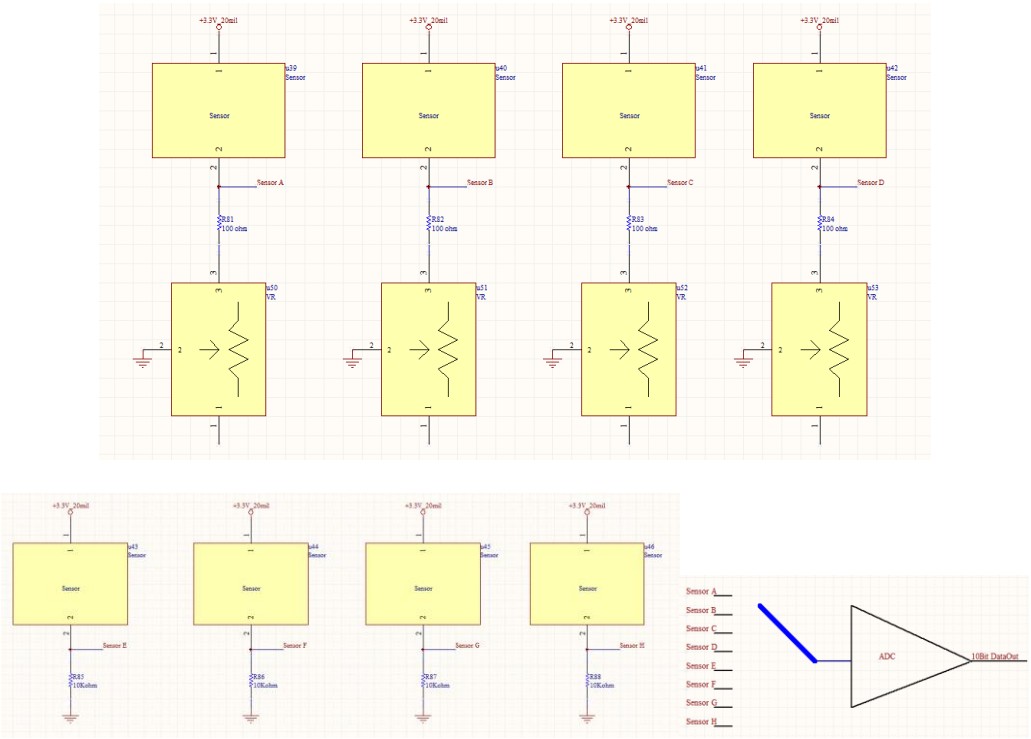


Click "Update":
Update force value and ADC value.

Step 5: check current parameter and save, then re-start software.



Circuit:


+3.3V_20mil
Sensor
Sensor A
Sensor B
Sensor C
Sensor D
R81
100 ohm
R82
100 ohm
R83
100 ohm
R84
100 ohm
VR
Sensor E
Sensor F
Sensor G
Sensor H
R85
10Kohm
R86
10Kohm
R87
10Kohm
R88
10Kohm
ADC
10Bit DataOut