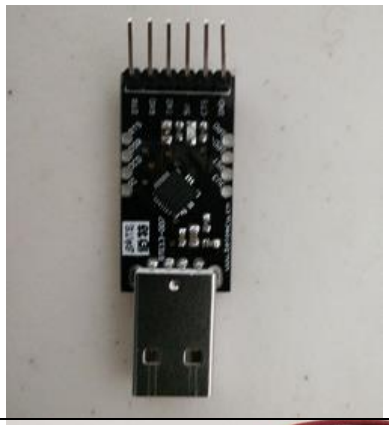
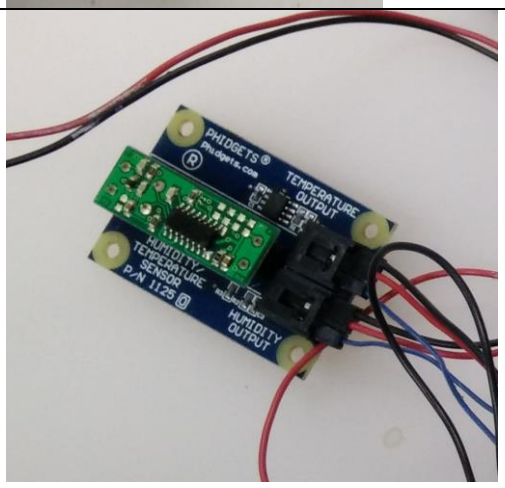
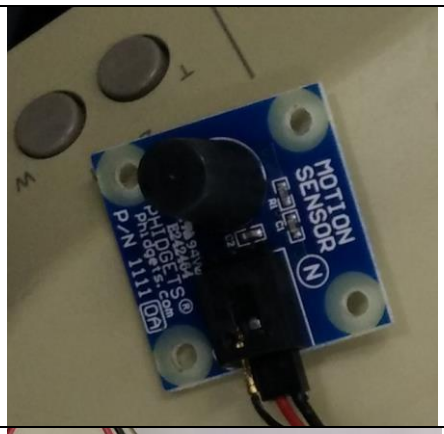
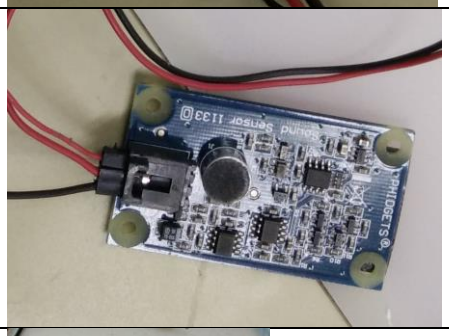
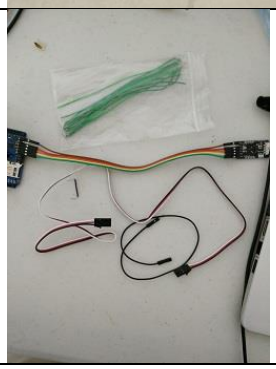
Arduino Sensor Data Collection in Microsoft Excel in Real Time

Contents

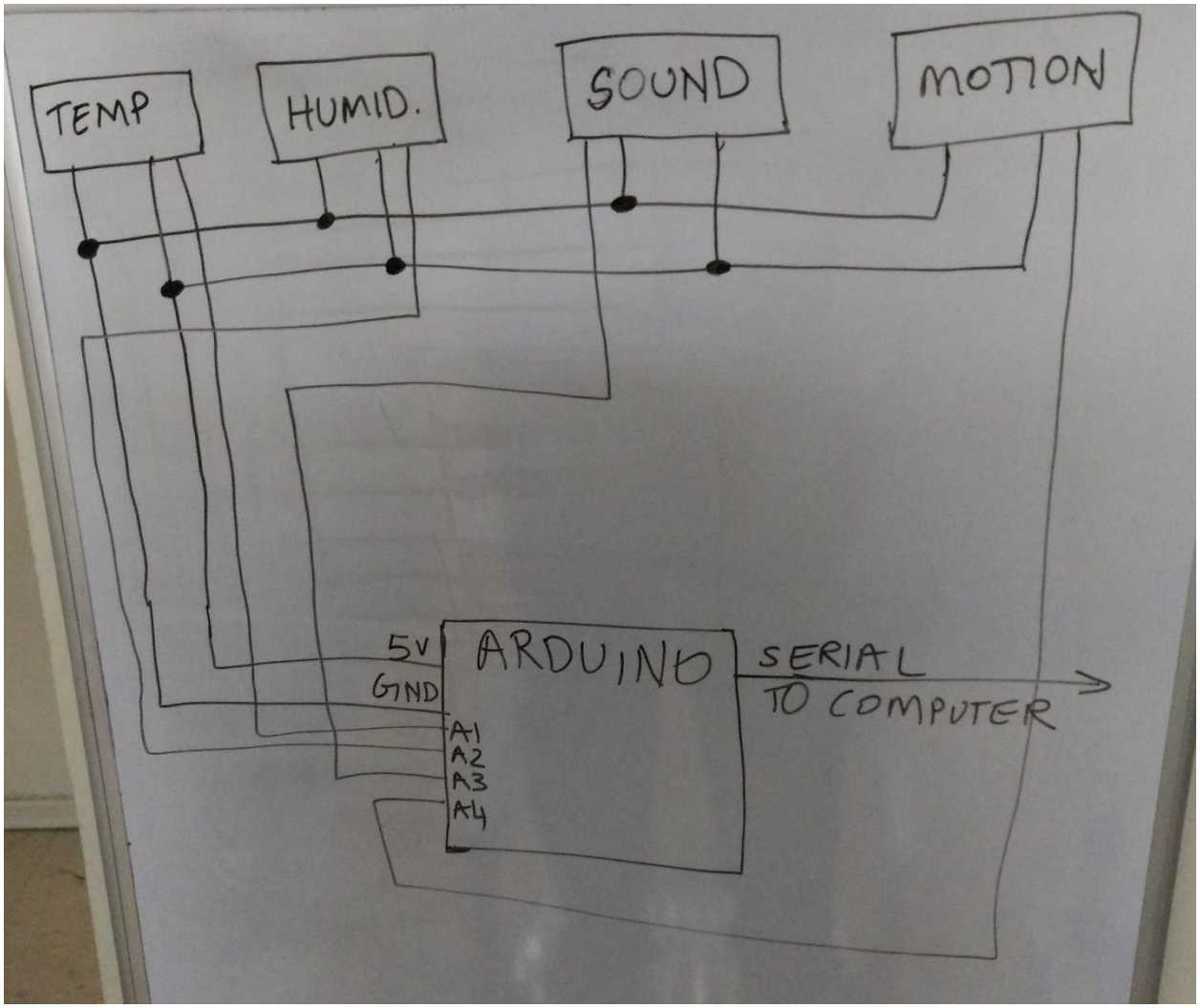
Parts List

Part	Image
Arduino (UNO can be used. In this example we are using the Arduino Ethernet Shield POE).	
UART	
Temperature and Humidity Sensor	

Motion sensor		
Sound sensor		
Wires		

Instructions.

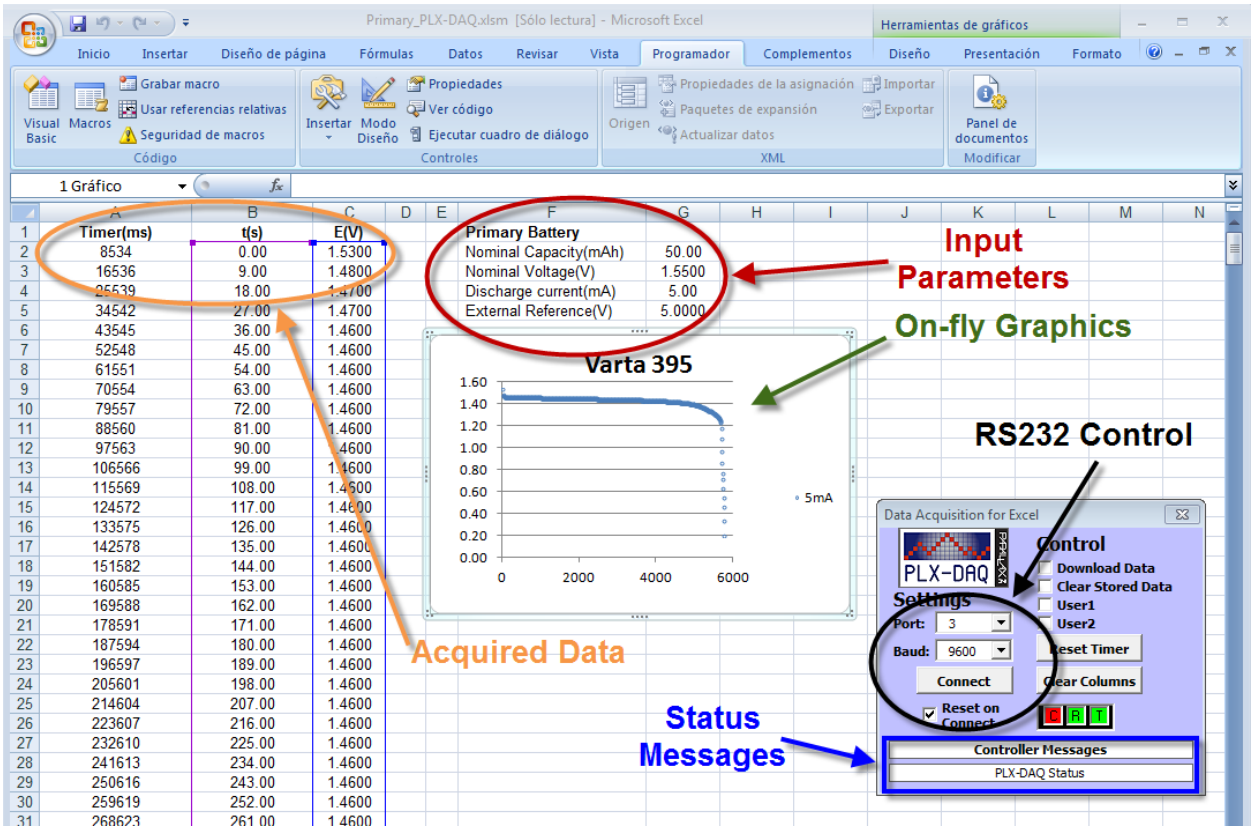
1. Set up the circuit as shown below:



2. Upload the code on https://github.com/shafeeqr2/Arduino-Sensor-Data-Collection-in-MS-Excel.git onto an Arduino board. Compile and run the sketch.

3. Install PLX-DAQ from:
   http://www.parallax.com/downloads/plx-daq

4. Start running the code. Open up the PLX-DAQ spreadsheet, select the baud rate and the COM Port. Click connect so that data can automatically be entered into excel. Graphs made on the data will automatically be updated in real time!



Theory behind the code:

All phidget sensors send an analog value to the Arduino with the exception of the motion sensor. The motion sensor sends a Boolean. Unlike Big Data, this project has centered on collecting data only when a significant change has been registered. In this regard, the difference ranges shown above have been carefully selected so that the tiny fluctuations do not indicate a change in value and at the same time the sensor's sensitivity wasn't reduced to the point where values would be compromised. Data is transferred into the computer through the Serial link.

Practical:

All sensors worked perfectly. The system was left running overnight on multiple occasions and judging by the timestamps, sensors showed no indication of malfunction.