AD3 : Introducing Arduino

Hi, I'm Henri an MArch 2 and I have been asked to help you guys get started with Arduino.

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come find me : Studio 5 Minto House

WHERE TO BUY ELECTRONICS

- ebay.co.uk
- amazon.co.uk
- Maplins   118-126,
             Dalry Road,
             Edinburgh,
             EH11 2EZ

Mon - Fri:	08:30 - 20:00
Sat:	09:00 - 18:00
Sun:	10:00 - 18:00

Watch out when ordering online, check delivery times (especially if ordering from China) to ensure your package will arrive in time. If you find there is no time to order the part you need online it might be worth checking if Maplins stock it. They will be more expensive, however, they are in Edinburgh!

In an emergency drop me an email, I have gathered quite a few parts and might be able to lend you what you need.

USEFUL WEBSITES/FORUMS

- forum.arduino.cc/
  Arduino forum
- grasshopper3d.com/forum
  Grasshopper forum
- discourse.mcneel.com/
  Rhino forum
- fireflyexperiments.com/forum/
  Firefly forum
- instructables.com
  A website full of projects (many including Arduino) with step by step guides
- youtube.com
  There are tonnes of tutorial videos on youtube and you can leave comments
- allaboutcircuits.com/tools/resistor-color-code-calculator/
  Easy way to calculate the value of resistors

The internet is a great place to find intelligent, helpful people eager to answer your questions for nothing but your gratitude. Use these forums!

Before posting on these forums do a few searches to check your question hasn't already been asked. When posting a new topic be sure to be as specific as possible. Are you using a Mac or PC? What version of the Arduino IDE are you running? List the full name of components you are using. Post clear pictures of you project and label them if necessary. These steps will help you get the best responses, and don't forget to say thanks!

REQUIRED SOFTWARE

- Rhinoceros 5
- Grasshopper
- Firefly
- Arduino IDE   (Latest Release is 1.8.4)

Although there is a release of Rhino compatible with Mac, Grasshopper (and thus Firefly) is only available on Windows machines. If you only have access to a Mac consider either Boot Camp or using a virtual machine to run Windows. This will then alow you to install the full version of Rhino, complete with Grasshopper compatability.

REQUIRED HARDWARE

- Laptop or desktop (ideally Windows, alternatively a Mac with Boot Camp or virtual machine)
- Arduino Uno/Mega board
- USB cable, Type A to B

Other bits such as breadboard, jumper wires, LEDs, resistors, motors etcetera should be available to you in the Arduino starter packs you have been provided. Additional modules and components may have to be purchased as required.

SESSION_01 | INTRO | 22/09/17   2-4pm

- Introduction to the Arduino Uno board
- Download and install Arduino IDE
- Connecting the board and upload first sketch
- Download and install Firefly
- Create an algorithm in Grasshopper which uses both Firefly and Arduino

SESSION_02 | INPUT | 26/09/17   4-6pm

- Sensors and reading data streams
- Light and LDRs
- Temperature, humidity
- Ultrasonic module
- Load cell
- Touch OSC

SESSION_03 | LOGGING | 29/09/17   2-4pm

- Recording data in the field
- Micro SD card module
- Realtime clock module
- Power supplies
- Reading collected data in Firefly

SESSION_04 | OUTPUT | 03/10/17   4-6pm

- Using the data we collect
- Servos
- Other Firefly firmata
- Stepper motors

SESSION_05 | SURGERY | 23/10/17   2-4pm

- Open session for questions and trouble shooting

SESSION_06 | SURGERY | 24/10/17   2-4pm

- Open session for questions and trouble shooting

If there is a particular topic/sensor/module etc. not mentioned in this timetable which you would like me to include please let me know. These sessions are for you and the content can be adjusted to best suit the requirements of your projects.

CREATING FIRST SKETCH WITH FIREFLY & ARDUINO

Before you create your first sketch in Firefly check you have already:

- Downloaded and installed the Arduino IDE
- Downloaded and installed Firefly
- Downloaded Firefly firmata for Arduino
- Uploaded the Firefly firmata to you Arduino
  board

Wire up your Arduino and potentiometer as detailed in Fig.1

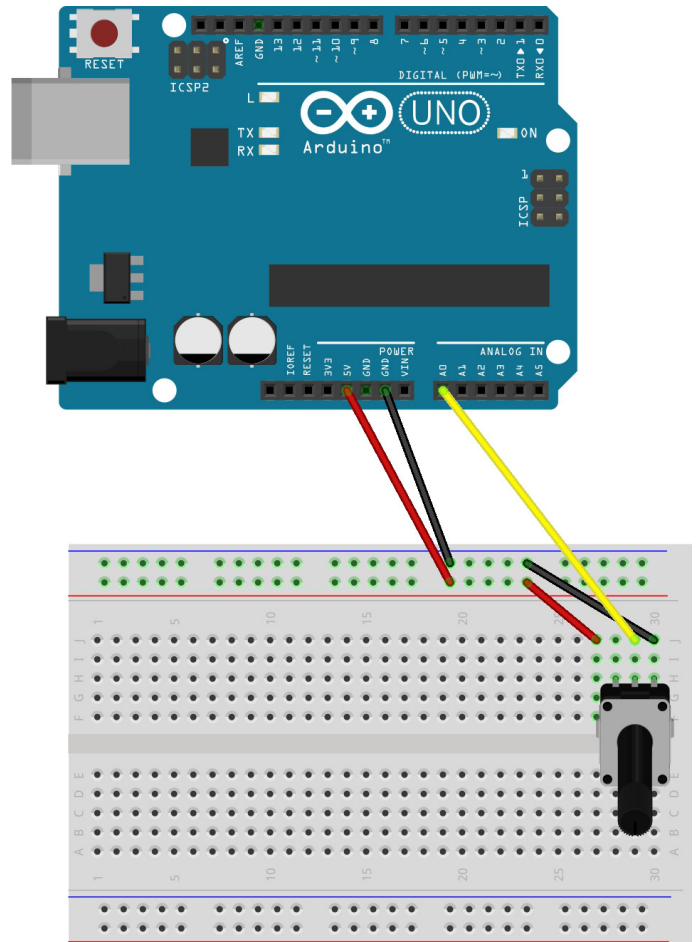Once you have gone through these steps you should be ready to attempt the Grasshopper/ Firefly sketch below Fig.2
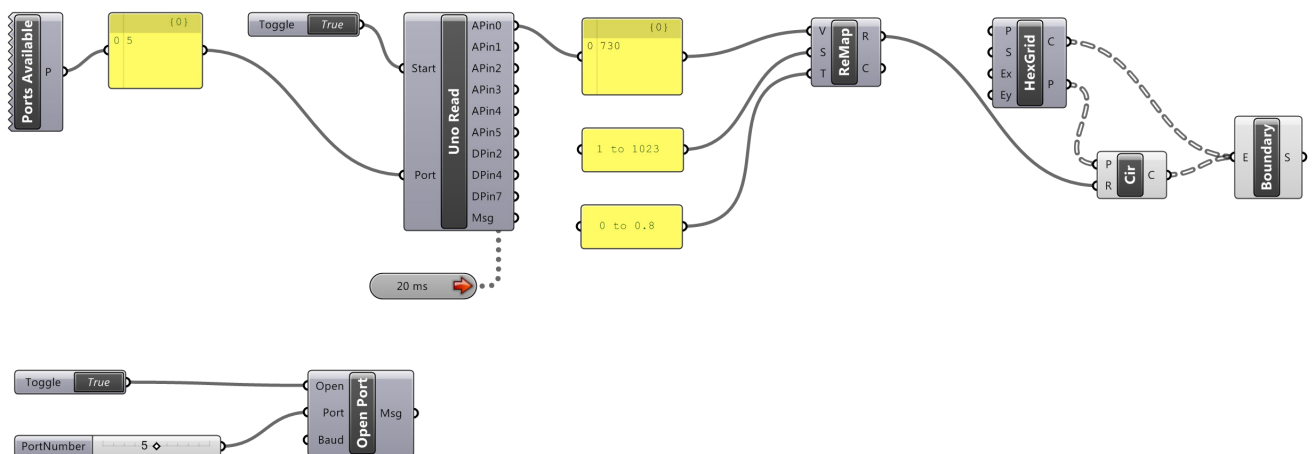

Fig.1

Fig.2