

Lecture 1: Let There Be Lights

Plan of Action

- Origin and History of Arduino
- Getting Acquainted with the IDE
- “Hello World” sketch
- Traffic Lights

Development of the Arduino

Born in an Italian design school, the Arduino was always going to be beautiful. The distinctive microcontroller has won admirers all over the world particularly for its ease of programming. Since 2009? the Uno and a wide variety clones/

Arduino Philosophy

Much of the Arduino’s success is attributable to the open source nature of the project. It is possible to modify both the source code of the Arduino software as well as build your own Arduino in fact it’s technically possible to build an imitation Arduino for under €5 in parts. This open philosophy has led to a huge community of users, hackers and makers springing up and supporting the platform.

The Arduino IDE

An IDE, or integrated development environment, is used to write human readable software, compile it into machine readable code and produce illegible debug messages that will have you tearing your hair out in no time. The Arduino IDE is based on Processing, an open source project developed by ?, and is currently in version 1.6. The icons on the top of the editor perform the following functions:

Verify and **Upload**: Verify simply checks that the code is syntactically correct and suitable for uploading. The upload button verifies the code and then uploads it to the connected board.

New, **Open** and **Save** as the the names imply are for creating new sketches, opening existing sketches and saving the current sketch.

On the top right of the editor is the **Open Serial Monitor** button. It allows you to send and recieve serial data between your computer and the Arduino.

Anatomy of a Sketch

```
void setup(){  
  
}  
  
void loop(){  
  
}
```

Hello Ardunio World

blinking

Semapore

looping

Parameterising

```
int LED = 13;
```

Pinteresting

Voltage and current from an Arduino pin

Resistors

Ohm's Law

Traffic Lights

Code

[Download Code](#)

Video

Stretch Goal

- Initialise the LEDs using an array
- Toggle lights based on keyboard input

Where to?

Domhnall's Projects Arduino Resources