



COMP140 GAM160: Hacking Hardware/Advanced
Programming

Session 6: 12

Learning outcomes

- ▶ **Identify** the various parts of the Arduino and their function
- ▶ **Explain** the difference between analog and digital
- ▶ **Implement** a basic interface using Arduino and openFrameworks

What is an Arduino?

- ▶ Open Source
- ▶ The Arduino is a small microcontroller board
- ▶ Basically, a small computer
- ▶ Perfect for rapid prototyping physical computing systems

Sensors & Actuators

Figure: The Lawn Mower Man - 1992

The basics

The Arduino can only processes electronic signals. This means that stimuli from the physical world need to be transduced to electrical signals before they can be processed from within your code.

- ▶ 14 Digital IO pins (0-14)
- ▶ 6 Analogue in pins(0-5)
- ▶ 6 Analogue out pins(3,5,6,9,10, and 11)

Power

You can power the board using a USB port or DC power supply such as a 9v battery. The Arduino will default to the external power supply if there is one available.

Analogue & Digital

Water Anology

Water Anology

PWM

Serial Communication

Driving Bigger Loads

Breadboard

Shields