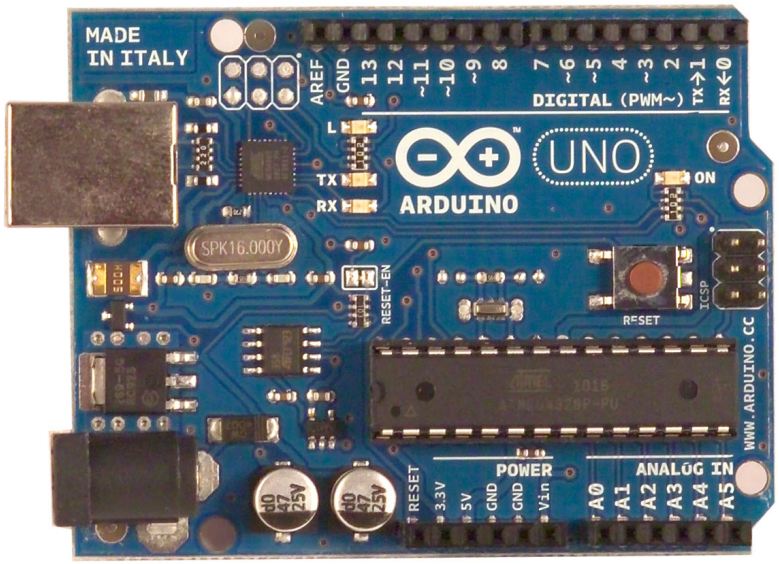
Why the Arduino is Here to Stay

Thomas Swartz

The University of Scranton

March 8, 2011

What exactly is the Arduino?



Arduino is an open-source electronics prototyping platform based on flexible, easy-to-use hardware and software.
It's intended for artists, designers, hobbyists, and anyone interested in creating interactive objects or environments.

What exactly is the Arduino?

There are over 100,000 Arduinos sold

What exactly is the Arduino?

There are over 100,000 Arduinos sold in the past 3 years.

What exactly is the Arduino?

There are over 100,000 Arduinos sold in the past 3 years.
As of 2/2/2011, there are 50,000 derivatives and shields made for the Arduino.

What exactly is the Arduino?

There are over 100,000 Arduinos sold in the past 3 years.
As of 2/2/2011, there are 50,000 derivatives and shields made for the Arduino.
That makes for a total of 150,000 Arduinos (and 150,000 projects) in 3 years

What exactly is the Arduino?

- Arduino can sense the environment by receiving input from a variety of sensors and can affect its surroundings by controlling lights, motors, and other actuators.

What exactly is the Arduino?

- Arduino can sense the environment by receiving input from a variety of sensors and can affect its surroundings by controlling lights, motors, and other actuators.
- The microcontroller on the board is programmed using the Arduino programming language (based on Wiring) and the Arduino development environment (based on Processing).

What exactly is the Arduino?

- Arduino can sense the environment by receiving input from a variety of sensors and can affect its surroundings by controlling lights, motors, and other actuators.
- The microcontroller on the board is programmed using the Arduino programming language (based on Wiring) and the Arduino development environment (based on Processing).
- Arduino projects can be stand-alone or they can communicate with software on running on a computer (e.g. Flash, Processing, MaxMSP).

What exactly is the Arduino?

- The boards can be built by hand or purchased preassembled

What exactly is the Arduino?

- The boards can be built by hand or purchased preassembled
- The software can be downloaded for free

What exactly is the Arduino?

- The boards can be built by hand or purchased preassembled
- The software can be downloaded for free
- The hardware reference designs (CAD files) are available under an open-source licenses

What can you do with an Arduino?

What can you do with an Arduino?

ANYTHING

A Coffee Pot That Tweets When It's Done

A Jeopardy Game Using Staples Easy Buttons

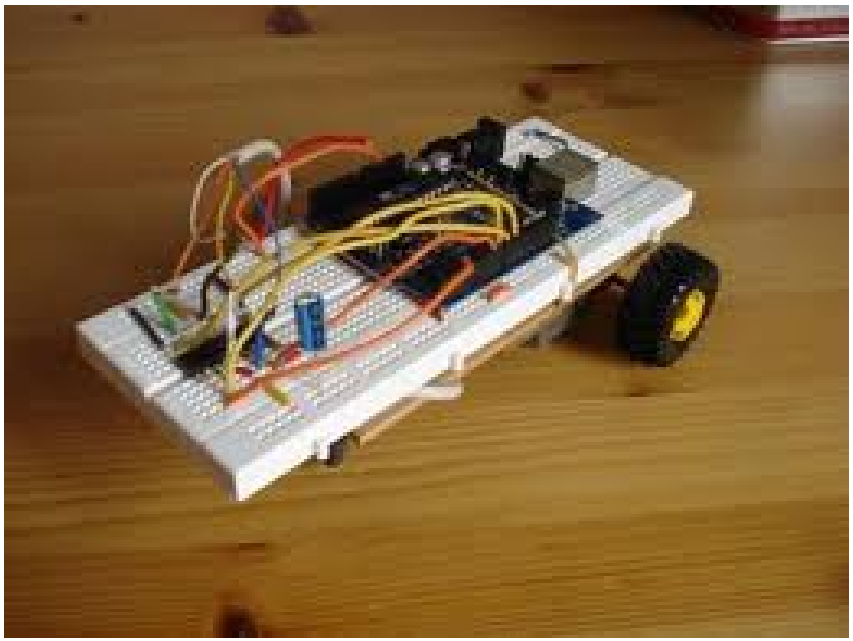
A Portal Gun

A Metroid Gun

A (Sexy) Tron Costume

A Wearable Turn Signal for Biking

A Simple Robot



An Even Better Robot

A Word Clock


IT'SOTENAHALF
TWENTYQUARTER
AFIVERMINUTES
PASTTOZONETWO
THREEFOURFIVE
SIXSEVENEIGHT
NINETENELEVEN
TWELVEO'CLOCK
DOUG'SARDUINO

So Why is it So Successful?

It Just Works

- The IDE runs on Mac, Windows, and Linux

It Just Works

- The IDE runs on Mac, Windows, and Linux
- The drivers actually work on systems other than Windows

It Just Works

- The IDE runs on Mac, Windows, and Linux
- The drivers actually work on systems other than Windows
- Libraries, Easy-to-do simple things, Easy-to-do hard things

It Just Works

- The IDE runs on Mac, Windows, and Linux
- The drivers actually work on systems other than Windows
- Libraries, Easy-to-do simple things, Easy-to-do hard things
- Lightweight and doesn't need a computer to run

It Just Works

- The IDE runs on Mac, Windows, and Linux
- The drivers actually work on systems other than Windows
- Libraries, Easy-to-do simple things, Easy-to-do hard things
- Lightweight and doesn't need a computer to run
- Sensors and Shields

It Just Works

- The IDE runs on Mac, Windows, and Linux
- The drivers actually work on systems other than Windows
- Libraries, Easy-to-do simple things, Easy-to-do hard things
- Lightweight and doesn't need a computer to run
- Sensors and Shields
- Simple, but not TOO simple!

It Just Works

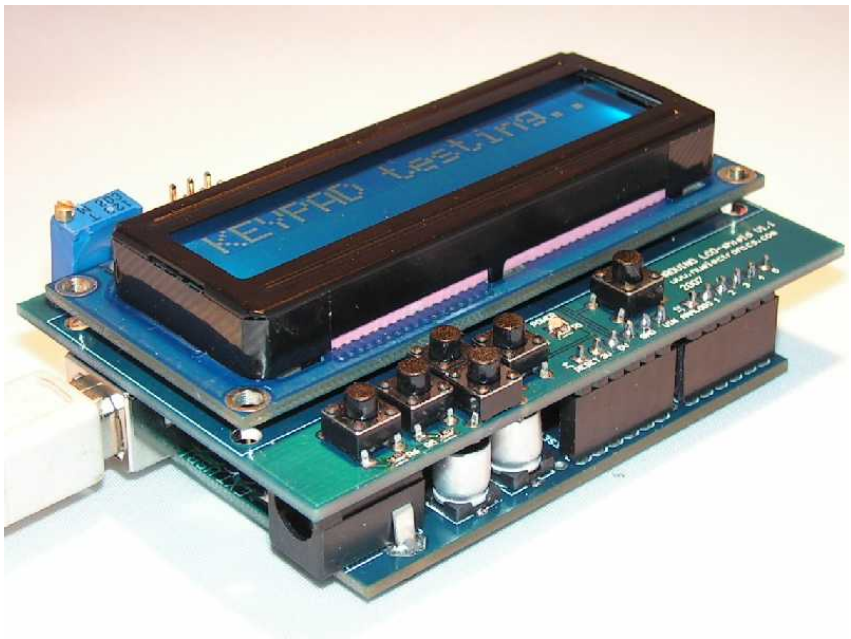
- The IDE runs on Mac, Windows, and Linux
- The drivers actually work on systems other than Windows
- Libraries, Easy-to-do simple things, Easy-to-do hard things
- Lightweight and doesn't need a computer to run
- Sensors and Shields
- Simple, but not TOO simple!
- Low cost

It Just Works

- The IDE runs on Mac, Windows, and Linux
- The drivers actually work on systems other than Windows
- Libraries, Easy-to-do simple things, Easy-to-do hard things
- Lightweight and doesn't need a computer to run
- Sensors and Shields
- Simple, but not TOO simple!
- Low cost
- Open Source

There is So Much Support

Anything you want to do is available to learn and create



How Does it Compare to What We Use Now?

Lets Compare:

	Arduino	C-Stamp	Basic Stamp
Cost	$25	$100	$50
Number of Pins	26	20	14
Voltage	1.5 – 24 V	3 – 24	3 – 24
RAM	30 Kb	32 Kb	32 Kb
Programming Interface	USB	Serial	Serial

Questions?

Real Life Demo

- RGB Color Mixer
- KITT
- Special Treat