Go for Robotics and Home Automation

Christopher Agocs

DramaFever, Inc.

September 13, 2016

Internet of Things

- AKA Putting computers on stuff
- more like internet of (U+1F4A9) amiright

Stuff with Computers:

- Adding sensors
  - Plants
  - Wine Bottle
  - Mail Boxes
- Adding displays
  - Digital Signage
  - Umbrella that pulses when it's about to rain
- Adding capability (Robots!)

Why bother?

- Display information
- Expand capabilities
- Fun of it

Why DIY?

- Cost
- You understand how it works
- Revolv Smart Home Hub

A cautionary tale

Why use Go?

- Go's just cool
- Easy web servers
- Great libraries using Gobot.io

Why not use Go?

- Huge binaries
- Very little RTOS support

What are our options?

- Arduino
- Raspberry Pi
- Beaglebone Black
- et cetera
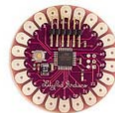
Arduino

- Tiny
- Cheap
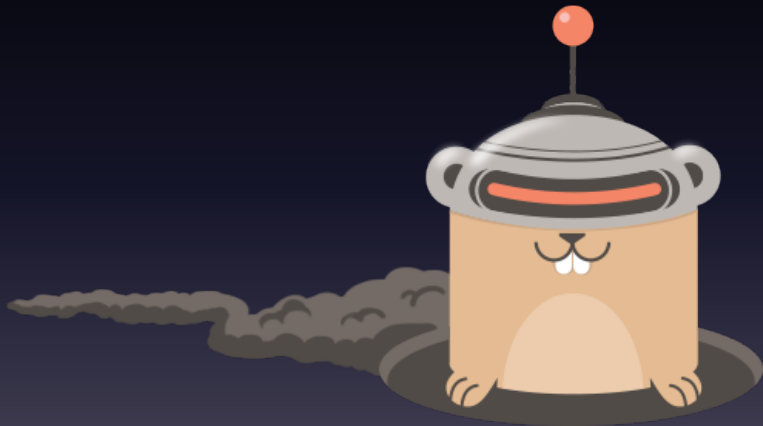- Ubiquitous

A million of 'em

http://karma-laboratory.com/workshops/arduinoforprogrammers/images/arduino$_variants.jpg

Arduino Problems

- Cheap
- Slow
- Tiny storage
  - Arduino Uno: 31K RAM
  - Go Hello World: 941K

Arduinos

Why bother?

Gobot.io

https://gobot.io/images/elements/gopher.png

Controlling Arduino over USB

- Firmata
- Go server runs on your computer
- Arduino is a USB device

Arduino Demo

- I don't know if this will work
- Take my word for it

Possibilities

- Load level LEDs
- Temperature monitor
- Track your stocks?!

Single Board Computers

- Raspberry Pi
- Beaglebone Black
- Intel Edison
- Onion Omega
- and so forth

Raspberry Pi

- Displays
- Fewer GPIO pins
- Digital Signage
- HTPCs

Beaglebone Black

- Fewer USB ports
- More GPIO pins
- Slightly slower than Pi3
- Cloud9 and Node

Examples

- Lights
- Earthquakes

Go forth and make

- It's so easy
- Just do it

Questions