JavaScript and the Internet of Things

Andrew Chalkley, Treehouse
@chalkers
What is the Internet of Things? (IoT)

Physical objects with embedded with electronics, sensors and software connected to the internet*.
IoT Examples

• Smart Thermostat
• Security Systems
• Smart Scales
• Health Monitor
• Fitness Tracker
• Smart Mirror
History of Hobbyist Electronics*

• Pre-Arduino Era
  • Expensive - 💰💰💰

• Arduino Era
  • Cheap(er) - 💰

• Today
  • Moore’s Law Means Powerful Devices…
JavaScript
JavaScript IoT Strategies

• JavaScript Only Microcontrollers
• Embedded Linux Devices
• Hybrid Solutions
JavaScript Only Microcontrollers

• Tessel 1
• Espruino / Espruino Pico
• ESP8266 / NodeMCU*
Tessel 1
Tessel 1

Pros
• Built-in Wireless
• Plug and play modules
• Node.js compatible*
• BYO Editor

Cons
• It gets bulky
• Expensive
• It’s no longer available
Espruino / Espruino Pico
Espruino / Espruino Pico

Pros
• Web IDE
• Small / easily embeddable
• Community Forum

Cons
• Web IDE
• It’s just a thing
• Lots of soldering
• Expensive
• Uncharted seas
ESP8266 / NodeMCU
Embedded Linux Devices

- Tessel 2
- Raspberry Pi
- C.H.I.P.
Tessel 2
Raspberry Pi A+ / 2 B
Raspberry Pi Zero
C.H.I.P.
Embedded Linux Devices

**Pros**
- Runs any software
- Can be cheaper than microcontrollers
- Mature ecosystems

**Cons**
- Needs to boot up
- IO is not as responsive
- More points of failure and attack
- Expensive
Hybrid Solutions
Hybrid Solutions
Hybrid Solutions
Hybrid Solutions

Pros
• You can program at a high level
• Get the benefits of both worlds
  • modern platform
  • responsive IO

Cons
• You’re dealing with more devices
• More hacky
• Even more points of failure / attack
• Most expensive
The Present (and Future) is Awesome!

• Cheaper Embedded Linux Computers EVERYWHERE
• Use Modern Full Stack JavaScript
• Any Stack!

• We need help to make it mature!
Questions

http://twitter.com/chalkers

http://vine.co/chalkers

http://forefront.io