The Teddy Controller

A programmers hardware adventure

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WHO AM I?

Malena Klaus

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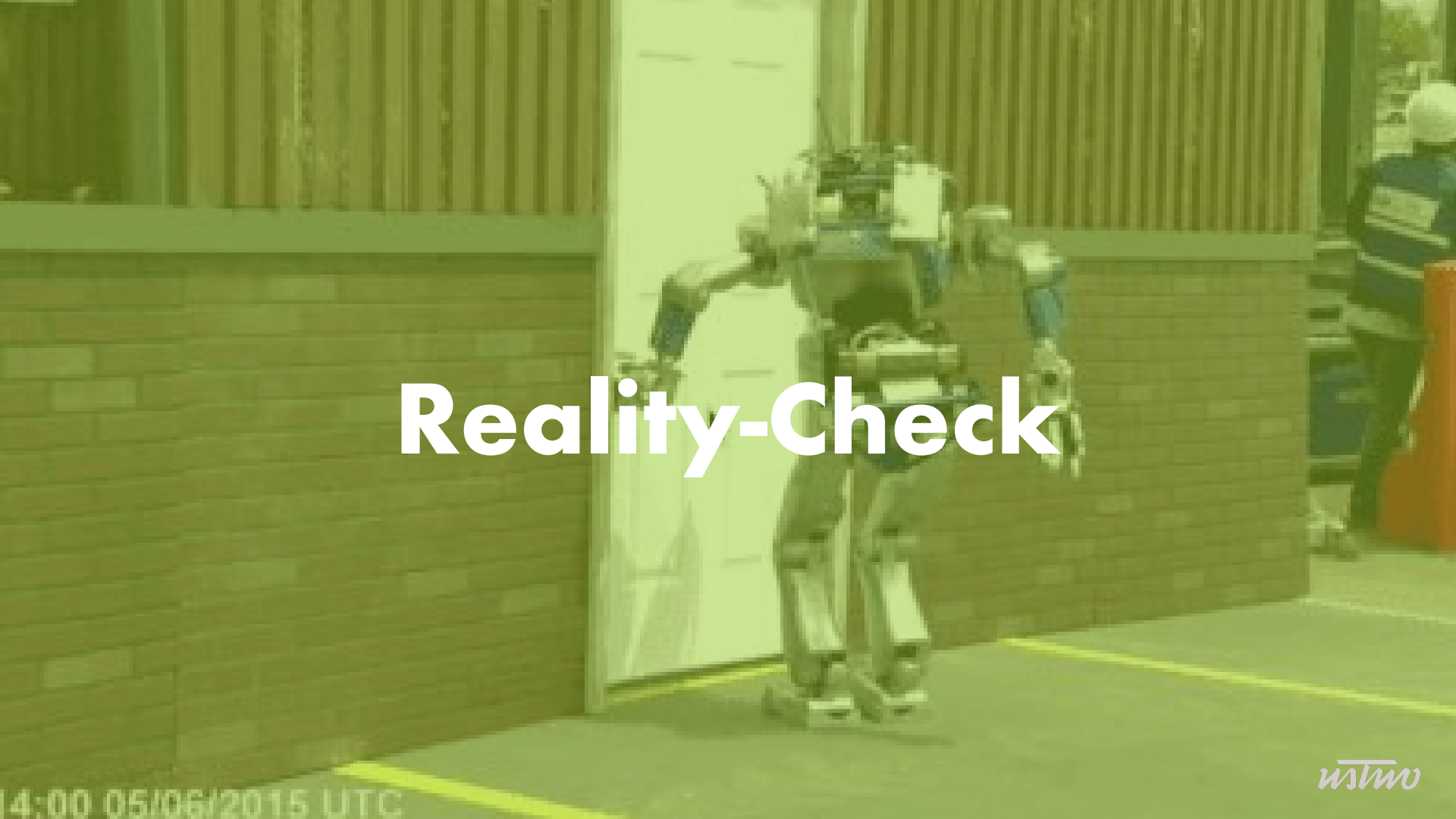
@dasmalle

My Dream


Reality-Check
14:00 05/06/2015 UTC

The Comeback

Master Thesis

The Project

- alternative controller
- Artificial intelligence
- Reduce entry barriers
- Companionship
- Encourage positive behaviour

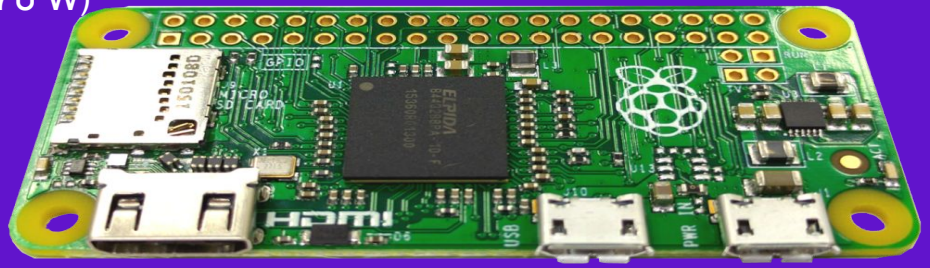
I love you everything burrito

The Hardware

(Micro)Controller Jungle

Raspberry Pi Zero

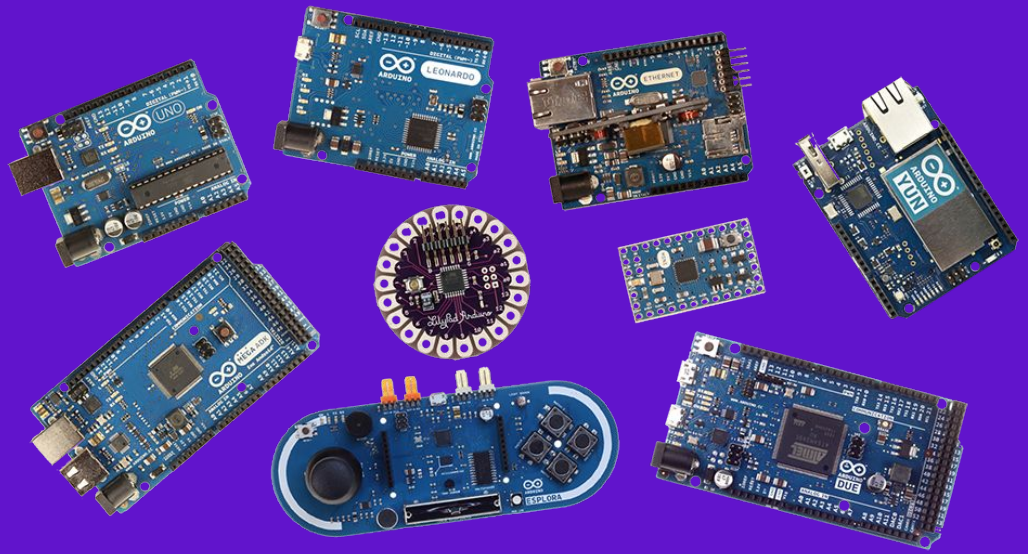
- 'Real' computer (1 GHz, 512 RAM)
- Power consumption: 120 mA (70 W)
- Credit card sized
- No analogue input



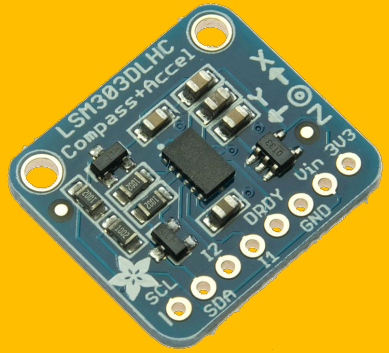
(Micro)Controller Jungle

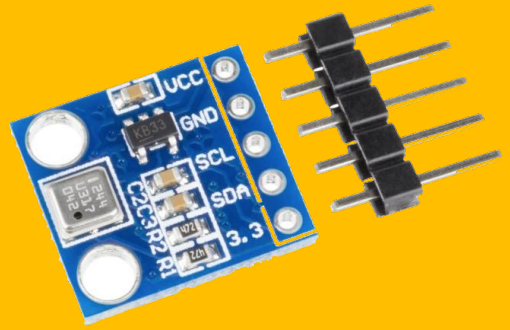
Arduino

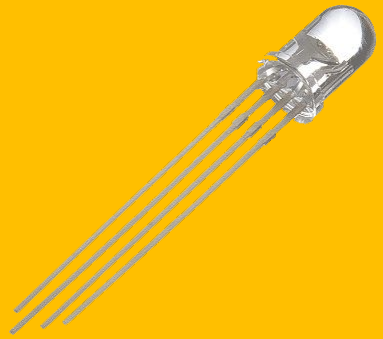
- Many versions, sizes, etc
- Usually cheap
- But how to choose the right one?

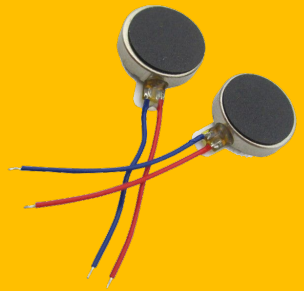


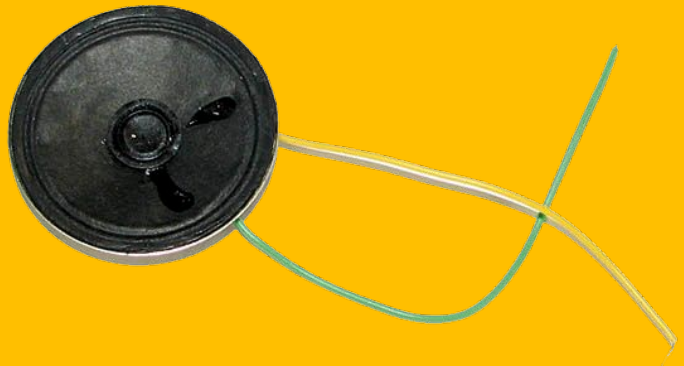
Input and Output











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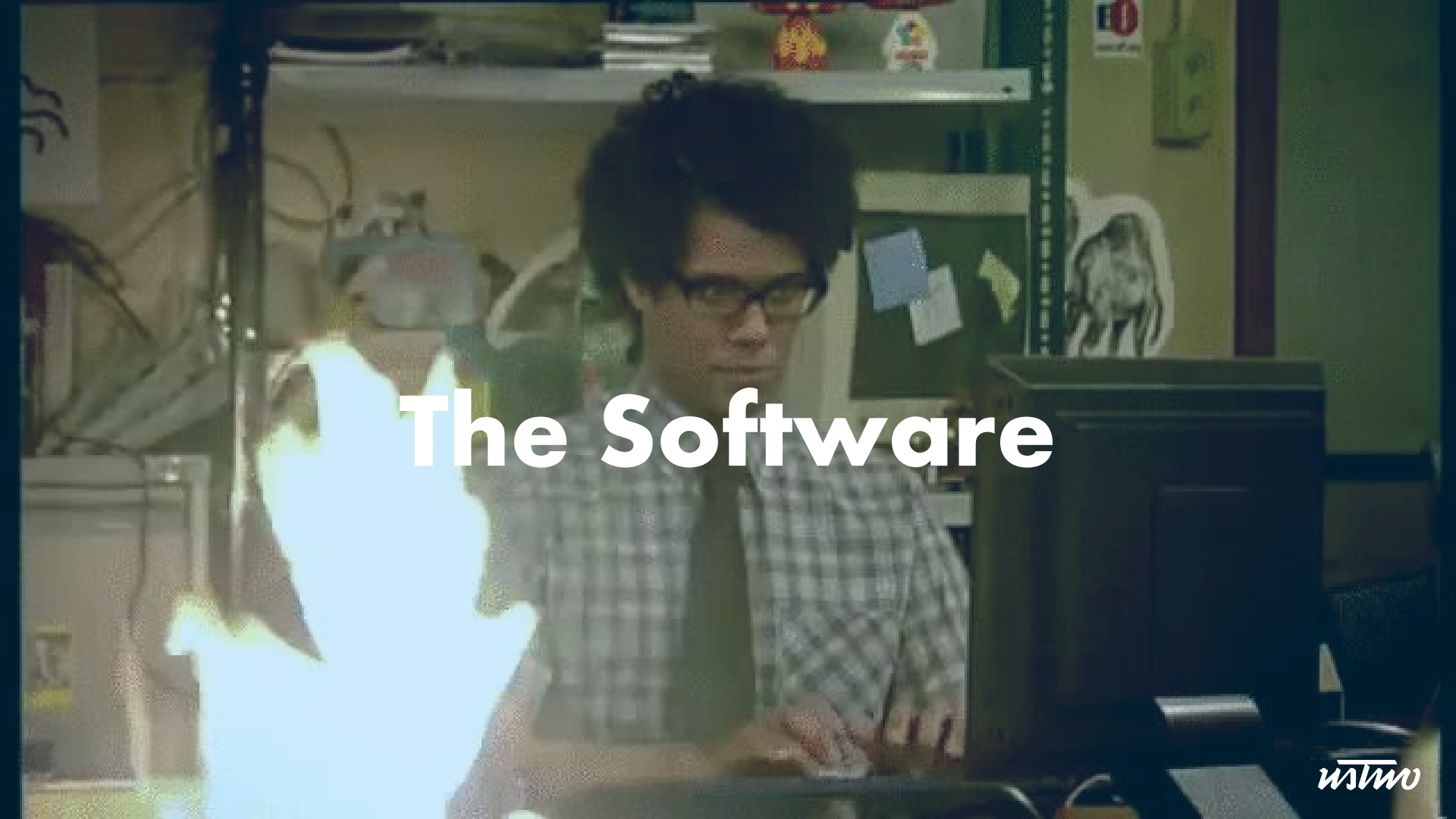
Soft electronics

http://www.kobakant.at/DIY/

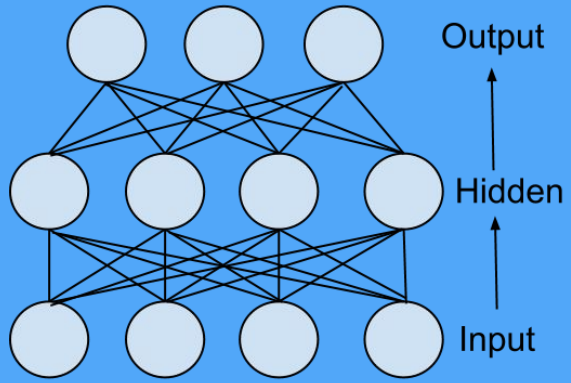
- Conductive fabric, yarn, wool
- Pressure sensitive sheet (velostat)
- Soft sensors
- Flex cuircuits
- motors , leds

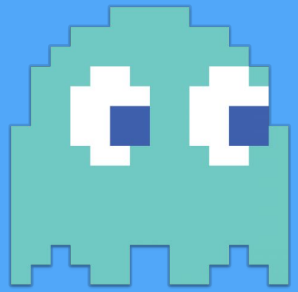
You understand how it works, there is a big chance you can make it soft


The Software

Artificial Intelligence

1. Reinforcement learning
2. Deep reinforcement learning
3. Back to classic game ai (Finite State machines, Behaviour trees)





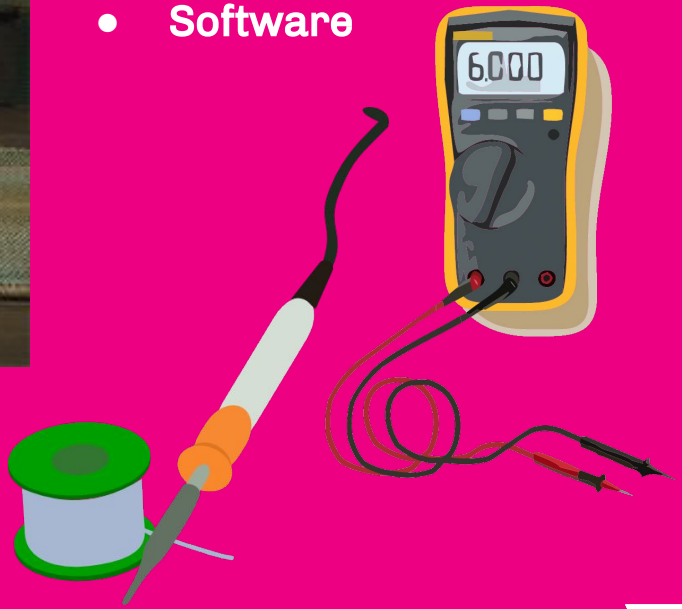
Stiching things together

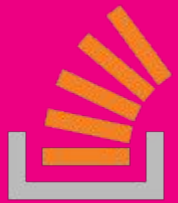
python

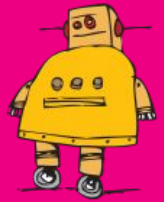
ARDUINO

Debugging

- Hardware
- Drivers
- Software







instructables

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The status
Haven't slept for a solid 83 hours,
but, yeah, I'm good.

The learnings

- Starting is easy and fun
- Find people to learn from
- Plan a lot more time than you think you will need
- Hardware is cheap if you have time to order from China
- Hardware is expensive if you need it now
- Quick, small and dirty, then polish and scale

Everyone can make IT happen!

Don't be afraid to break things!

Dude, sucking at something is the first step
towards being sort of good at something

Links

- https://www.aliexpress.com/
- www.kobakant.at/DIY/
- http://aipanic.com/projects/wobbler
- https://www.adafruit.com/
- https://www.sparkfun.com
- https://makezine.com/
- https://www.humblebundle.com/books/
- http://stpln.se/

Thank you

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