

The Teddy Controller

A programmers hardware
adventure

istmo

WHO AM I?



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WSTW



A quadruped robot, resembling a small dog, is captured in motion on a light-colored track inside a large, high-ceilinged indoor arena. The robot is dark-colored with visible mechanical components. The background shows the vast, empty space of the arena with some distant equipment and a digital display on the wall. The entire image has a warm, yellowish tint.

My Dream

Reality-Check

A humanoid robot, possibly a Pepper robot, is standing in a doorway. It has a blue and white color scheme. The background shows a brick wall and a person in a blue shirt and white cap. The scene is overlaid with a semi-transparent blue filter.

14:00 05/06/2015 UTC

ustwo

line wobbler

The Comeback

Master Thesis

The Project

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





I love you everything burrito

NEW EPISODE
CN

instaw

A top-down view of a brown teddy bear lying on a light blue workbench. The bear is being disassembled, with its head and limbs separated. Various tools are laid out around the bear: a large curved knife with a wooden handle at the top left, a pair of red-handled pliers, a pair of scissors, a syringe, and several small screwdrivers. To the right of the bear, there are two black circular objects, possibly lenses or filters, and a small bowl containing brown material. The text "The Hardware" is overlaid in the center in a bold, white, sans-serif font.

The Hardware

(Micro)Controller Jungle

Raspberry Pi Zero

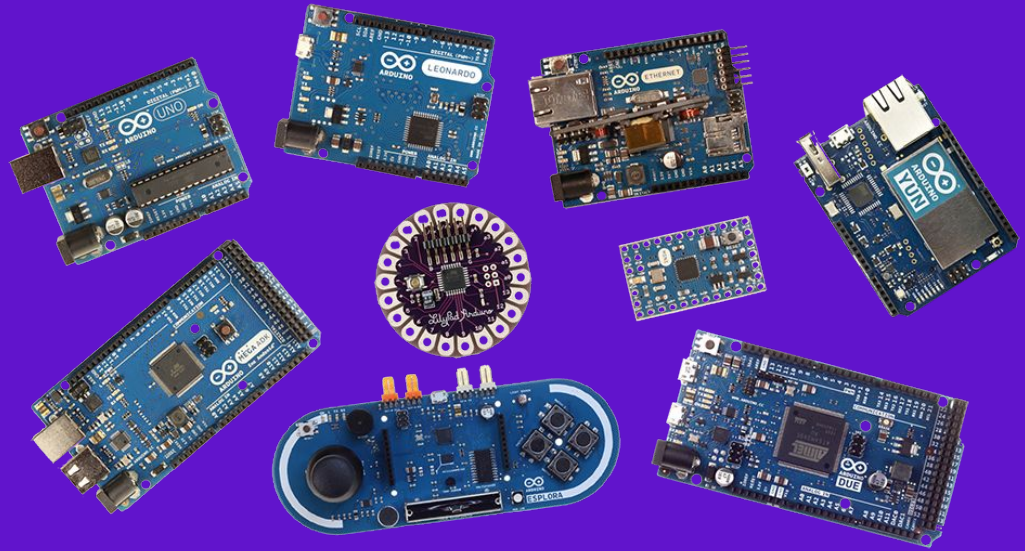
- 'Real' computer (1 GHz, 512 RAM)
- Power consumption: 120 mA (70 W)
- Credit card sized
- No analogue input



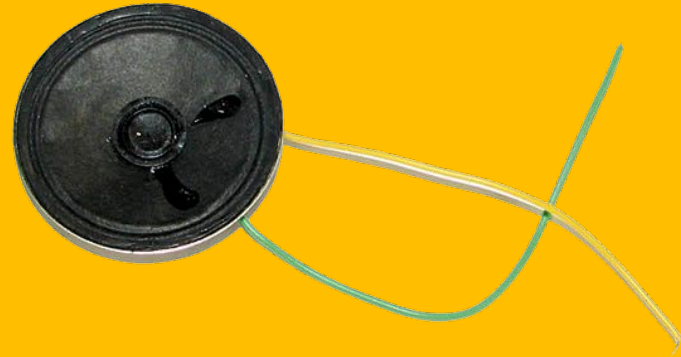
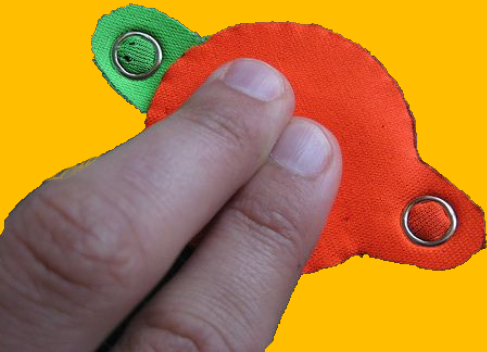
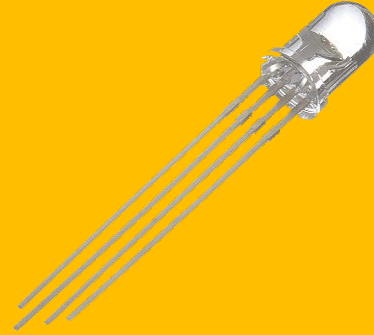
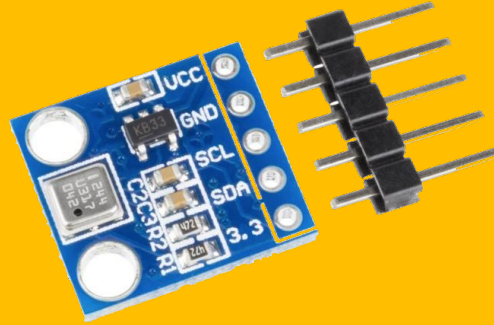
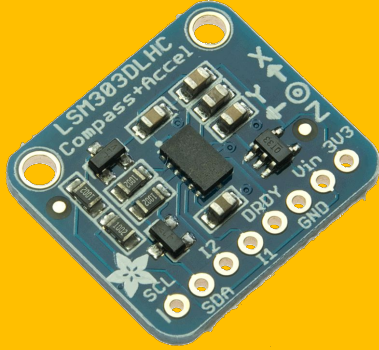
(Micro)Controller Jungle

Arduino

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



Input and Output



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

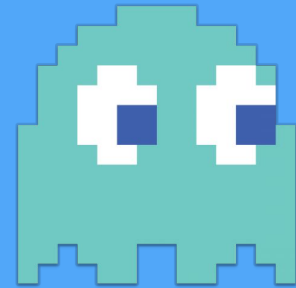
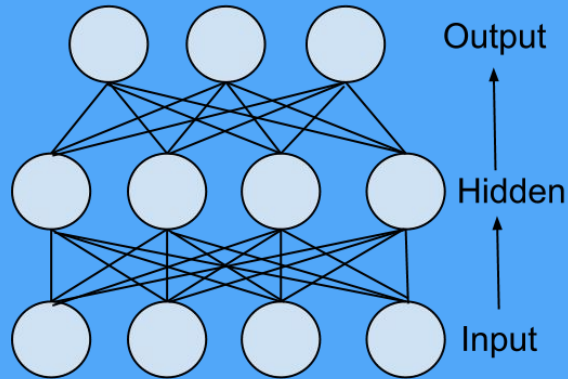




The Software

Artificial Intelligence

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



Stiching things together



SOFTWARE



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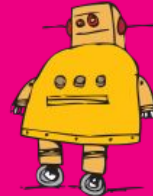
Debugging



- Hardware
- Drivers
- Software



SOFTWARE



instructables



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A cartoon illustration of a female scientist with pink hair and blue round glasses, wearing a white lab coat. She is sitting on a white cat and holding a blue hairbrush with a pink spot on it. In the foreground, there is a green alien head and a yellow object. The background shows a laboratory setting with a chalkboard, a whiteboard, and various lab equipment. A large pink hand is visible on the right side of the frame.

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!

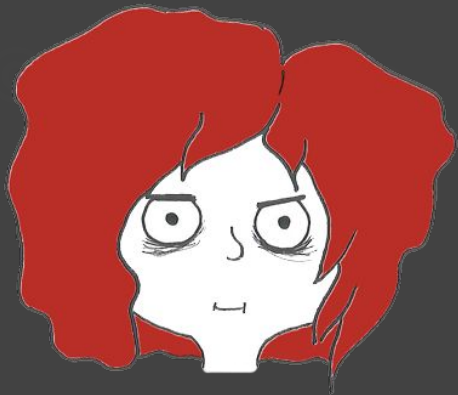


**Dude, sucking at something is the first step
towards being sort of good at something**

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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@dasmalle

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