Raspberry Pi Robotics

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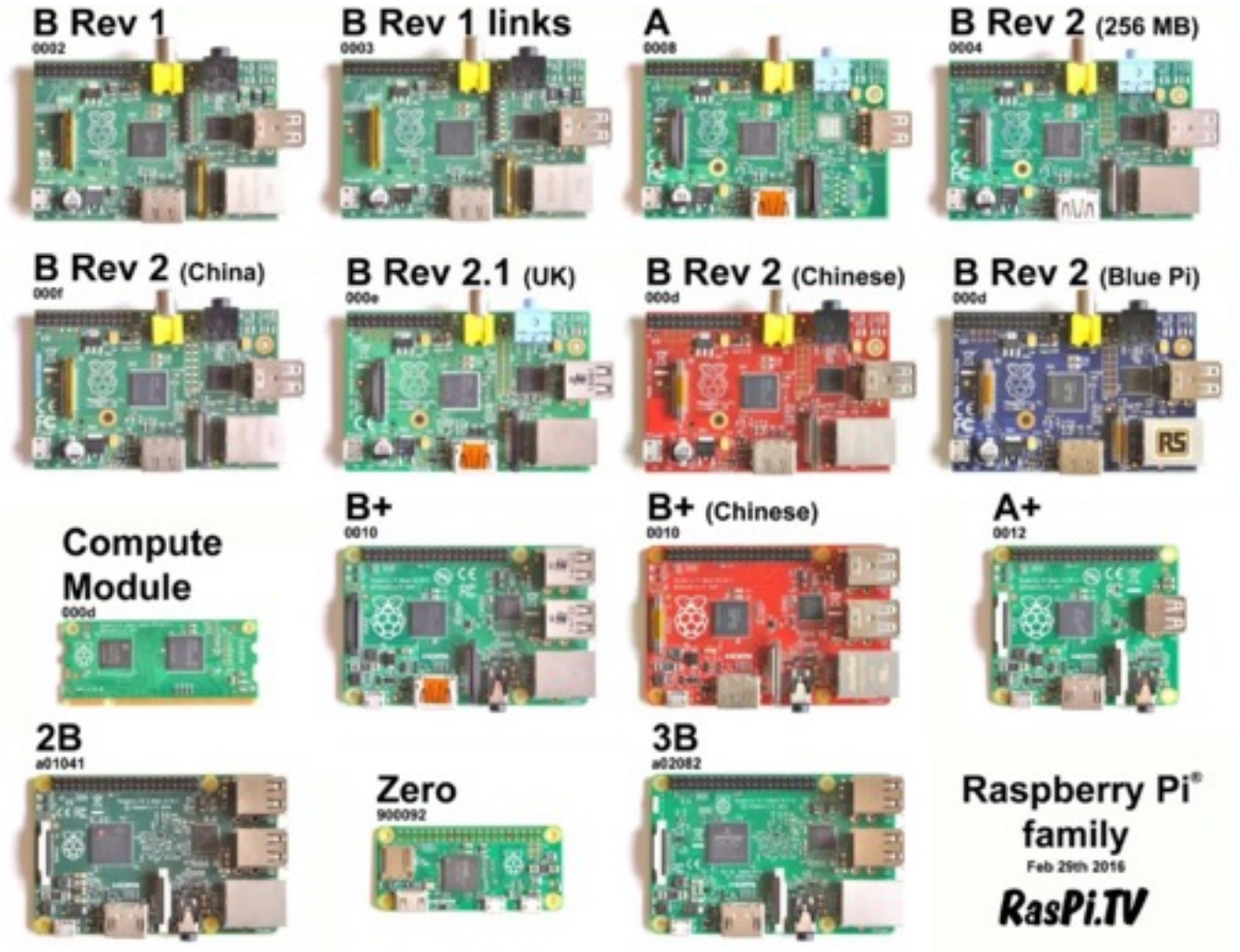
Blog

and
the Wardrobe
As You
Like It
Thursday 2 and Friday 3 July 2015
7.30pm, Senior School Hall
Code Clubs
Pi Lights

Why use a Raspberry Pi?

- The Raspberry Pi is a small & cheap single broad computer made in the UK
- Friendly community
- Lots of programming languages to use, Scratch, C++, Python
- Robot kits are available for all budgets from £17 to £200 +
- The Raspberry Pi Camera, great for computer vision
- Built in Bluetooth & WiFi with the new Raspberry Pi 3 Model B

Which Raspberry Pi should I use?



Pros: faster the A+, low power consumption, smallest Pi

512 MB

Cons: no camera port, no built in Bluetooth/WiFi,

Pros: small size, low power consumption, camera port
Cons: One USB port, slowest model, 256 MB momery, no built in Bluetooth/WiFi

Pros: four USB ports, camera port
Cons: power consumption, no built in Bluetooth/ WiFi, 512 MB memory

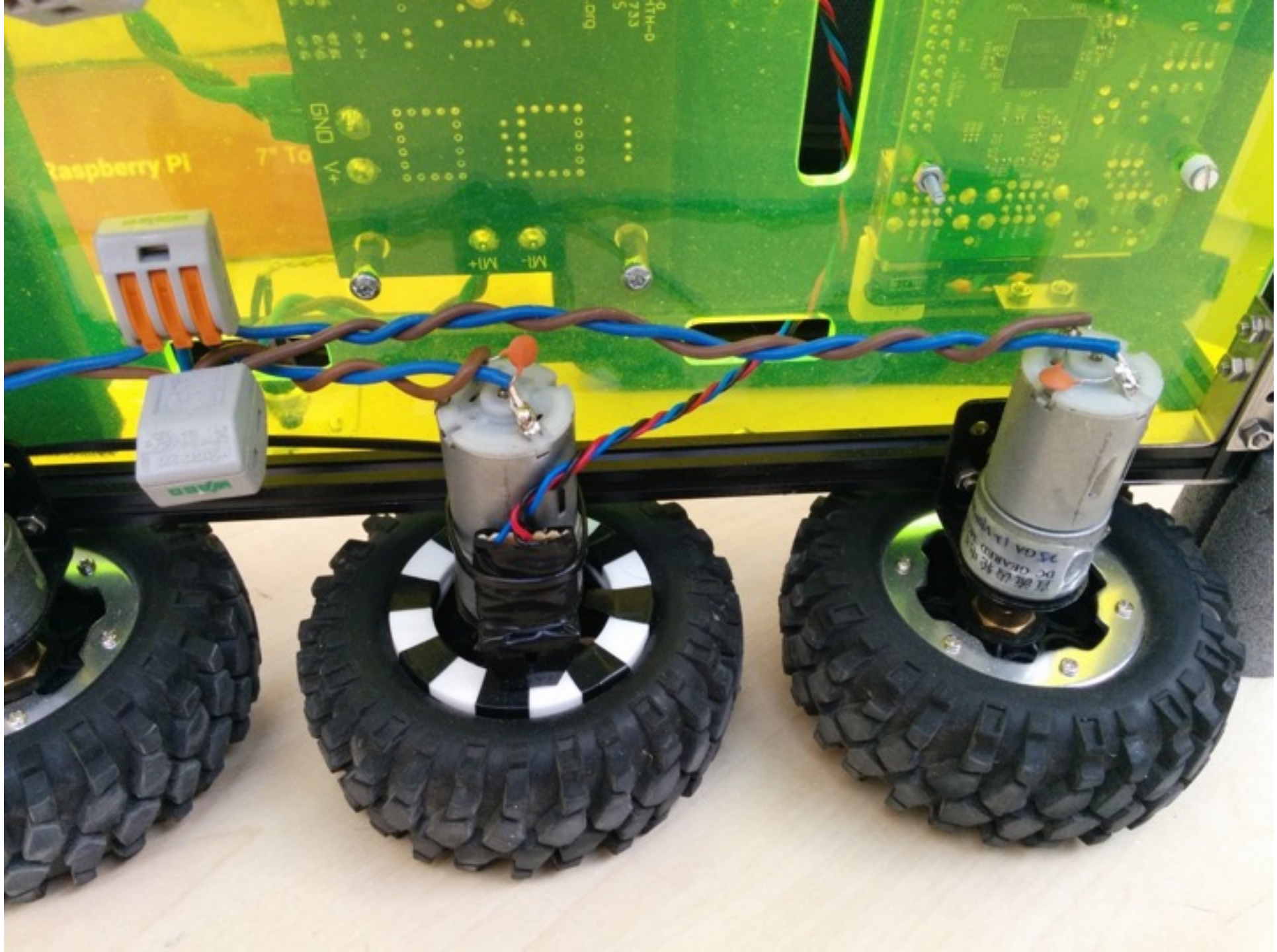
Pros: four USB ports, camera port, 1 GB memory
Cons: power consumption, no built in Bluetooth/ WiFi

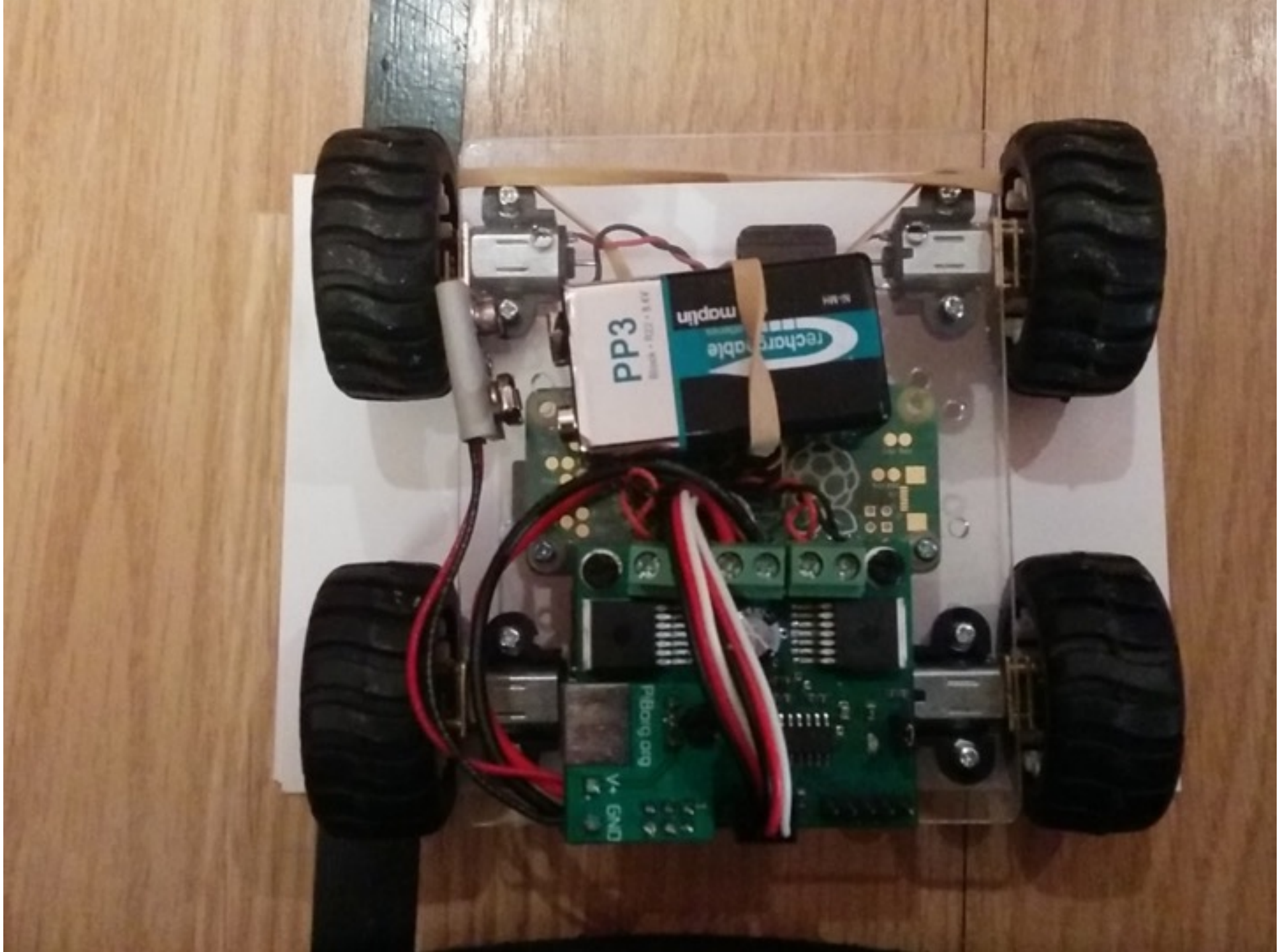
Pros: Built in Bluetooth/WiFi, fastest Pi, camera port

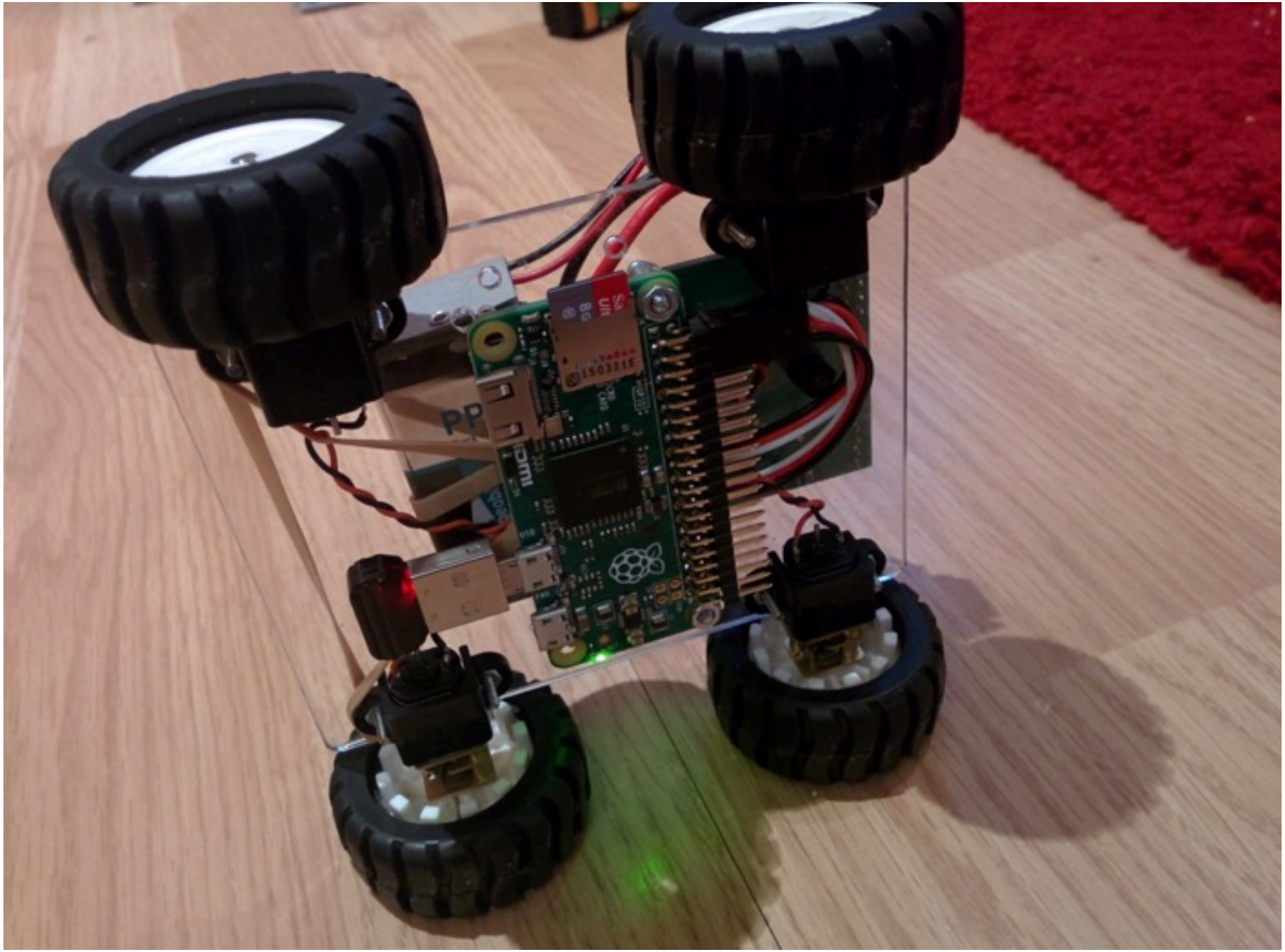
Cons: poorest power consumption

Anatomy of a Raspberry Pi Robot

www.optifuel.co.uk


Raspberry Pi
GND
V+
M1-
M1+


PP3
maplin
PiBorg.org
GND
V+



Controlling the Robot

WIRELESS
AFTERGLOW
#1
SELLING BRAND
TRY ME
SmartTrack
pdp
WIRELESS
CONTROLLER
MANETTE SANS FIL
CONTROL INALÁMBRICO
WORKS WITH
PS3

Esc
Tab
Caps Lock
Shift
Ctrl
Alt
Fn
Back
Enter
Shift
Rii

Resources

Information

- The Raspberry Pi foundation: www.raspberypi.org
- Pimoroni: www.pimoroni.com
- PiBorg: www.piborg.org
- Adafruit: www.adafruit.com
- My blog: www.corteil.co.uk/Blog
- Pinouts: www.pinout.xyz

Hardware

- Pimoroni: www.pimoroni.com
- PiBorg: www.piborg.org
- 4Tronix: www.4tronix.co.uk
- The Pi Hut: www.thepihut.com
- Makersify: www.makersify.com
- Mod My Pi: www.modmypi.com
- Adafruit: www.adafruit.com

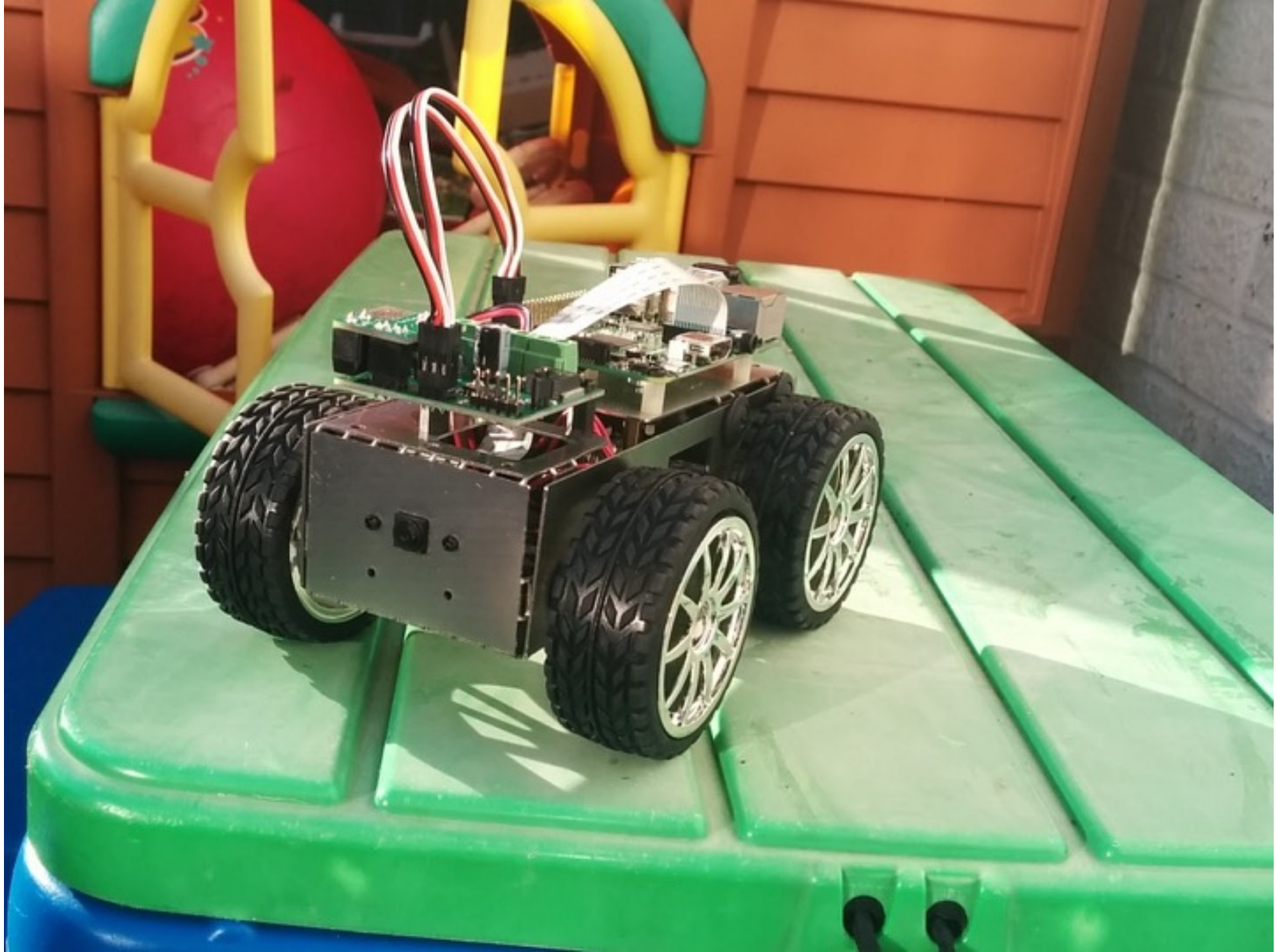
Software Tools

- PyCharm (Python IDE): www.jetbrains.com/PyCharm
- Filezilla (SFTP client): www.filezilla-project.org
- PuTTY (SHH & Telnet client): www.chiark.greenend.org.uk
- Inkscape (vector drawings): www.inkscape.org
- Fusion360 (2D & 3D CAD): www.fusion360.Autodesk.com
- OpenCV (Python CV library)
- SimpleCV (simple OpenCV python library)

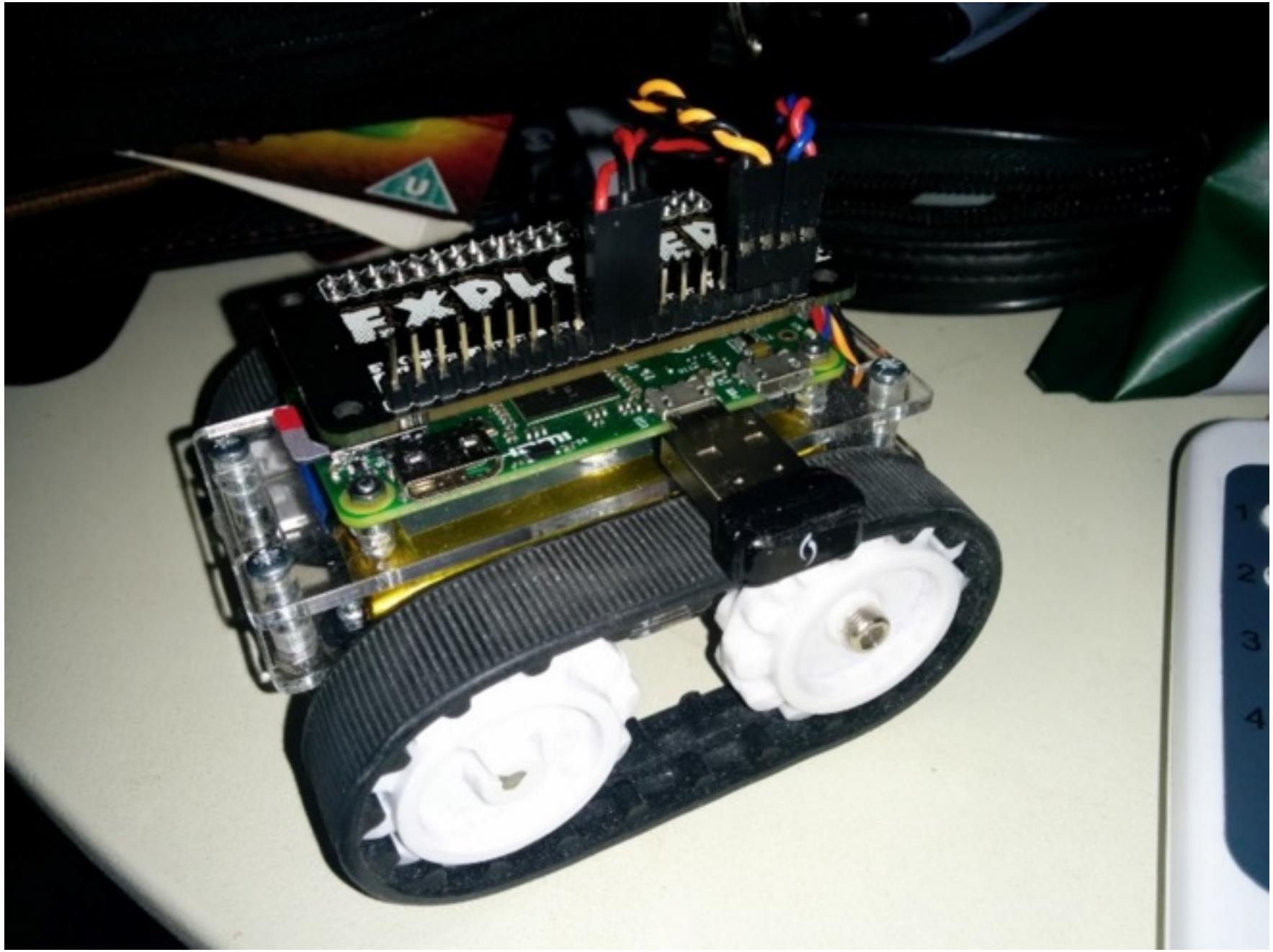
Robotics Workshops

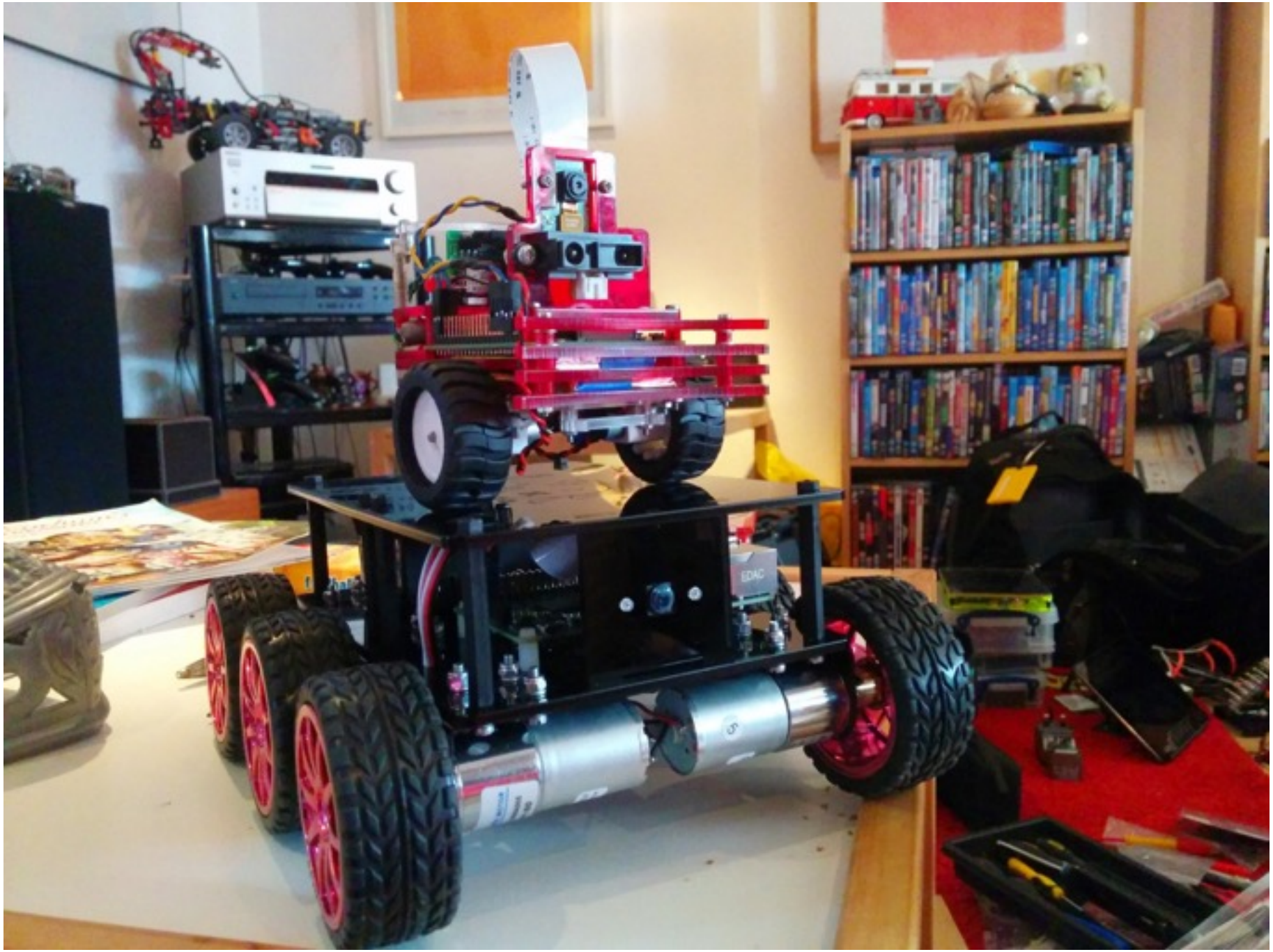
- Raspberry Pi Jams workshops: www.raspberrypi.org
- Cambridge Raspberry Pi Jam: www.camjam.me
- Peterborough Raspberry Pi Jam: www.petrasjam.com
- Hacklabs (mainly for kids): www.thehacklab.uk

Robots of all Sizes



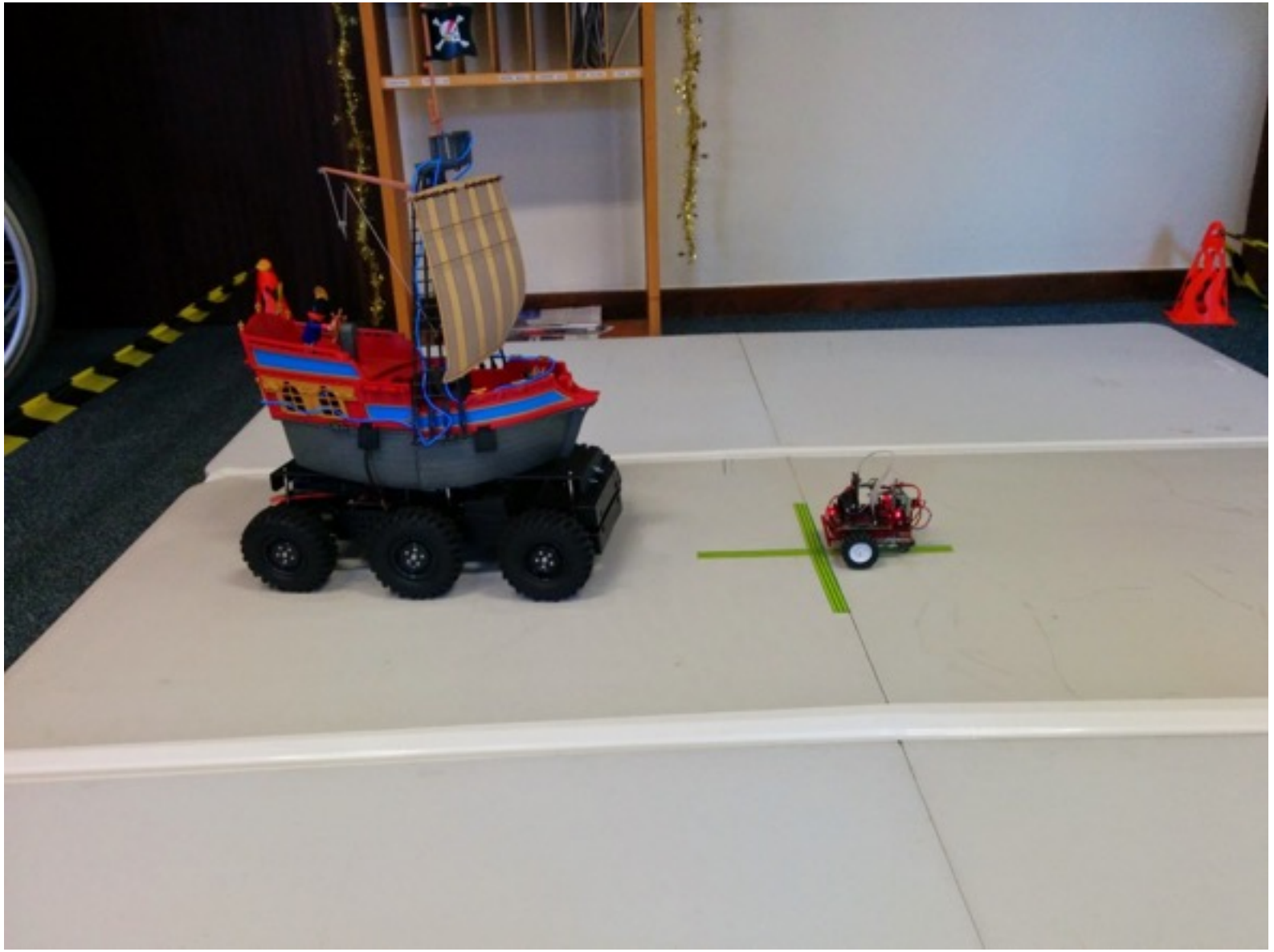
and
the Wardrobe
As You
like It



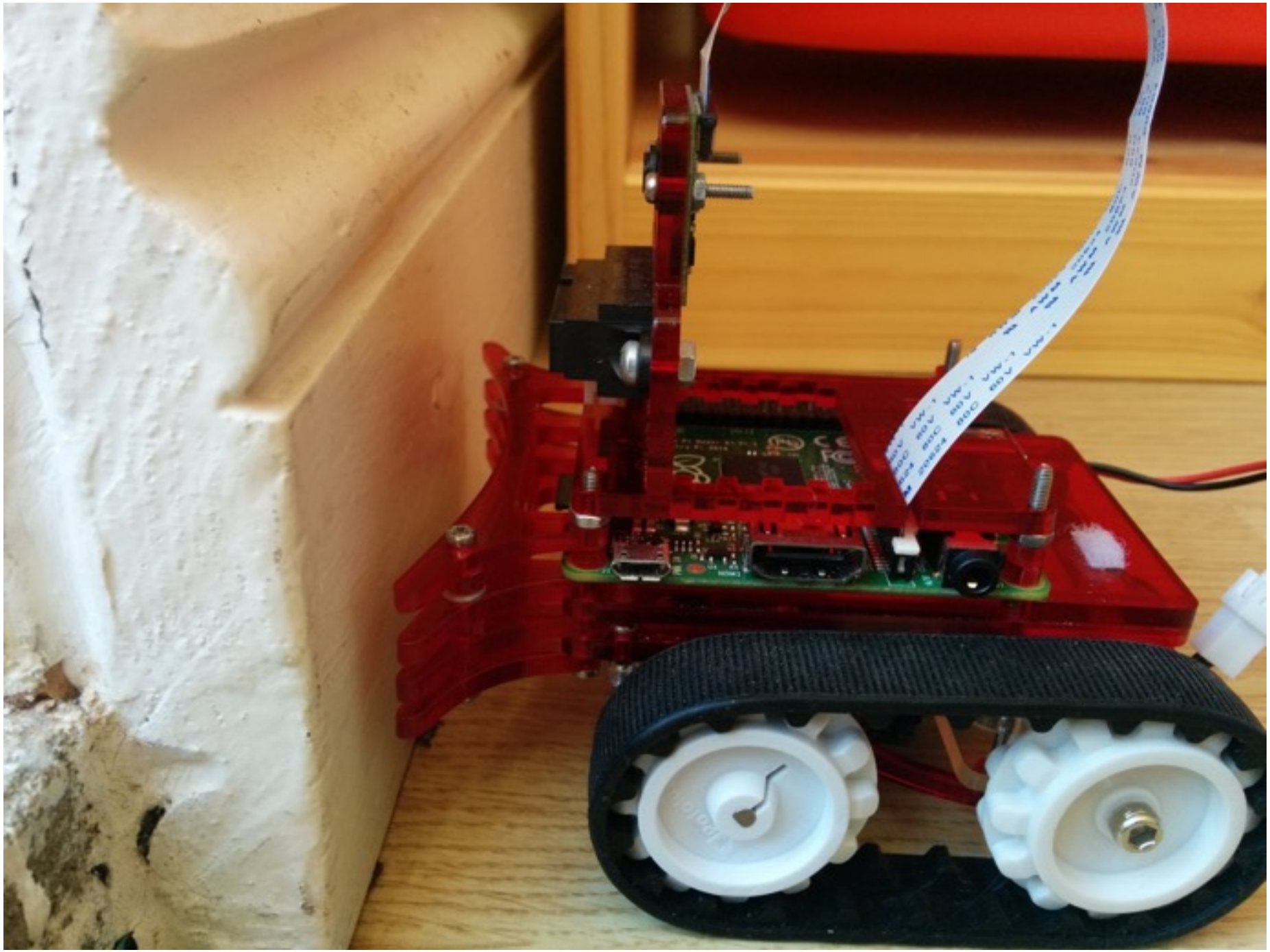

101
EDAC

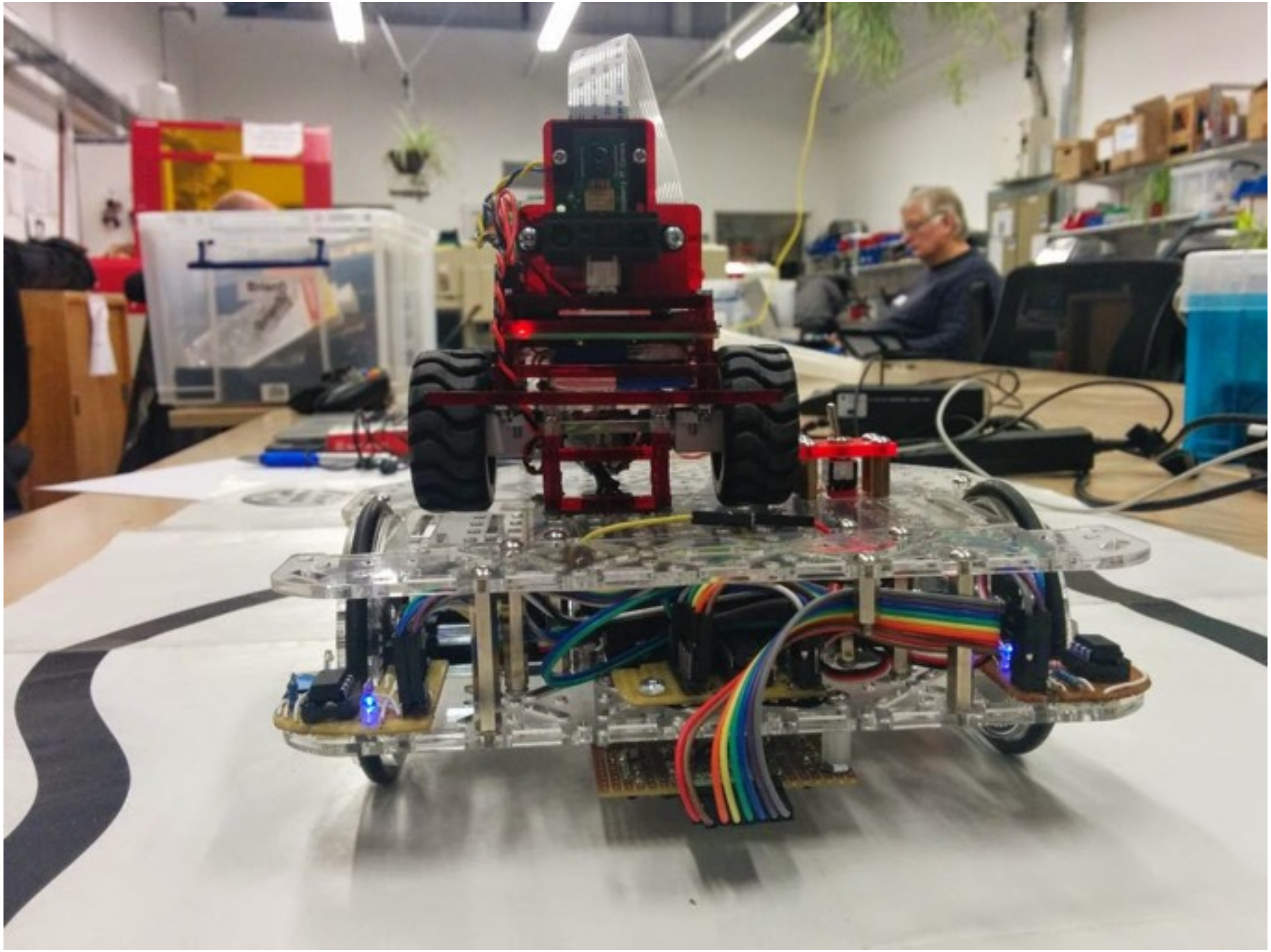
Pi Wars

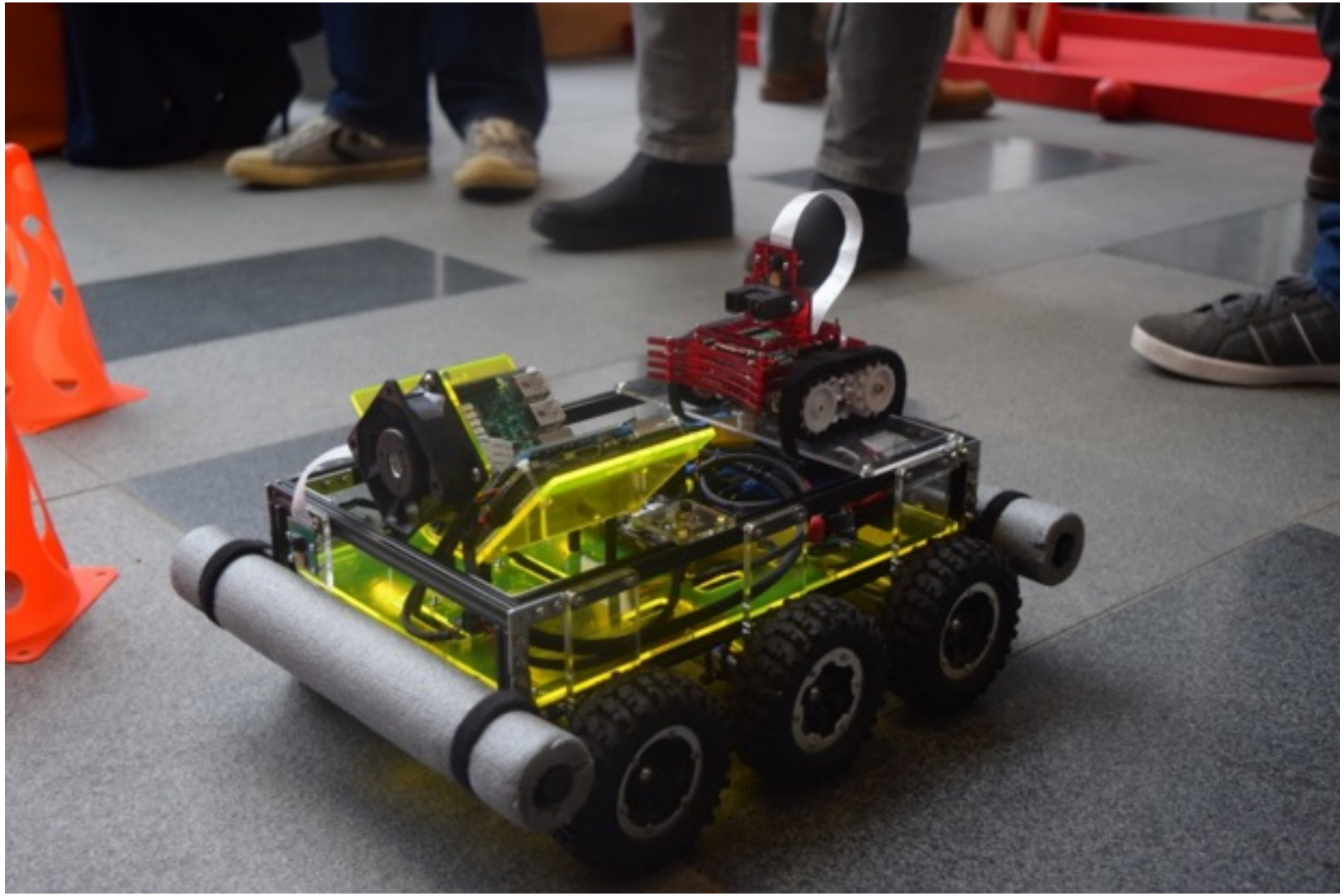
A Tale About Two Robots



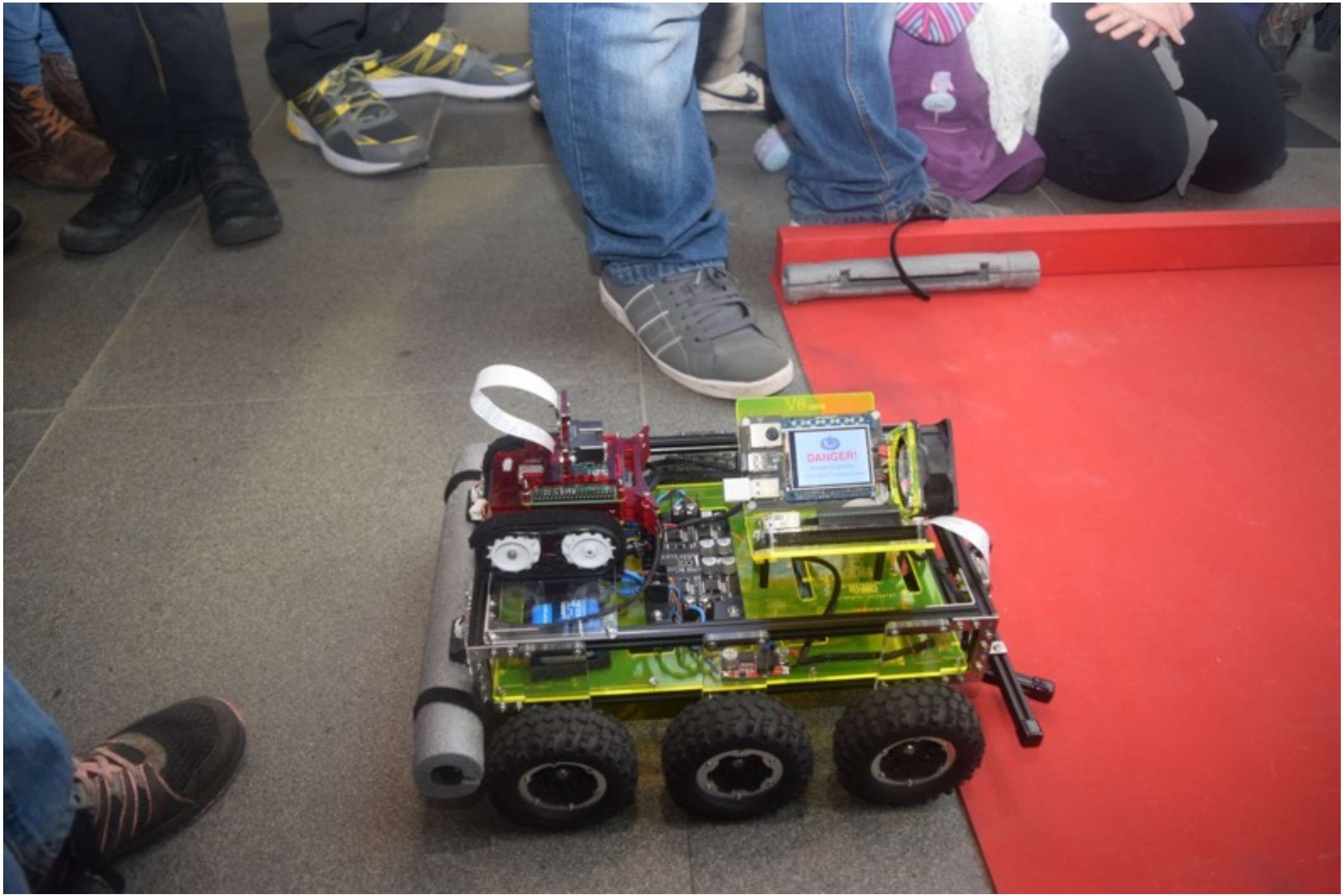
2014: PyroBot

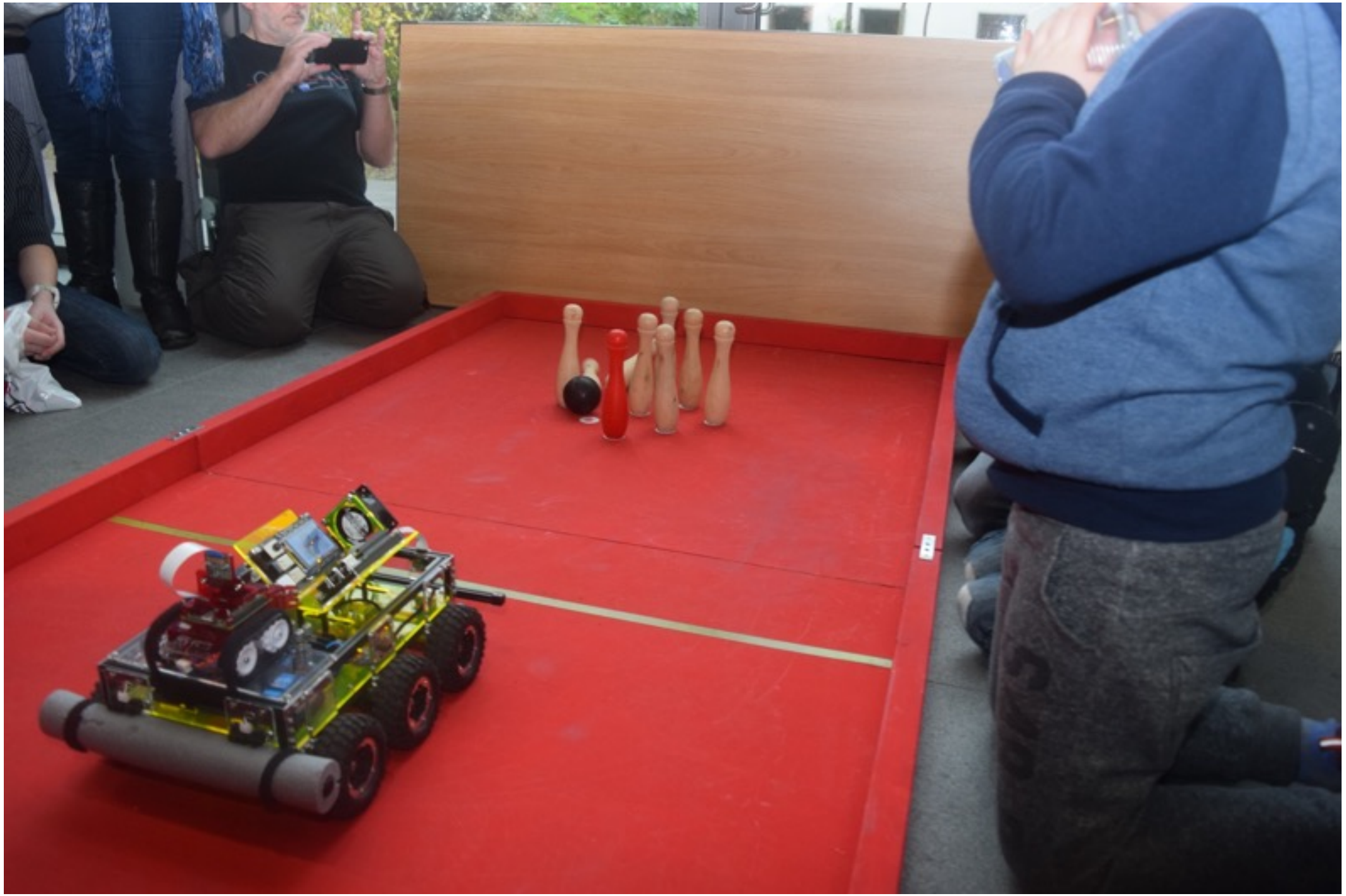


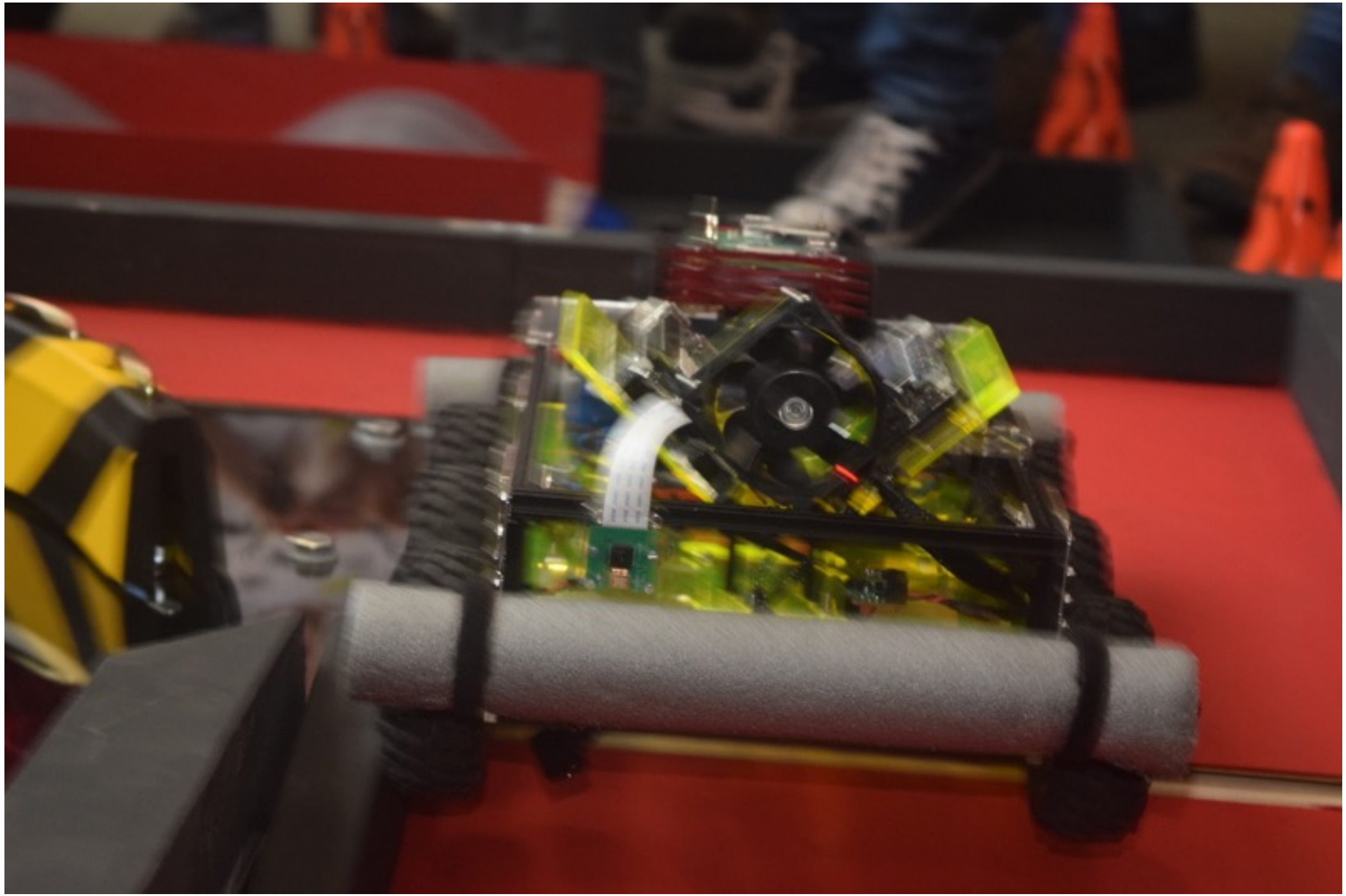




2015: Revenge


DANGER!

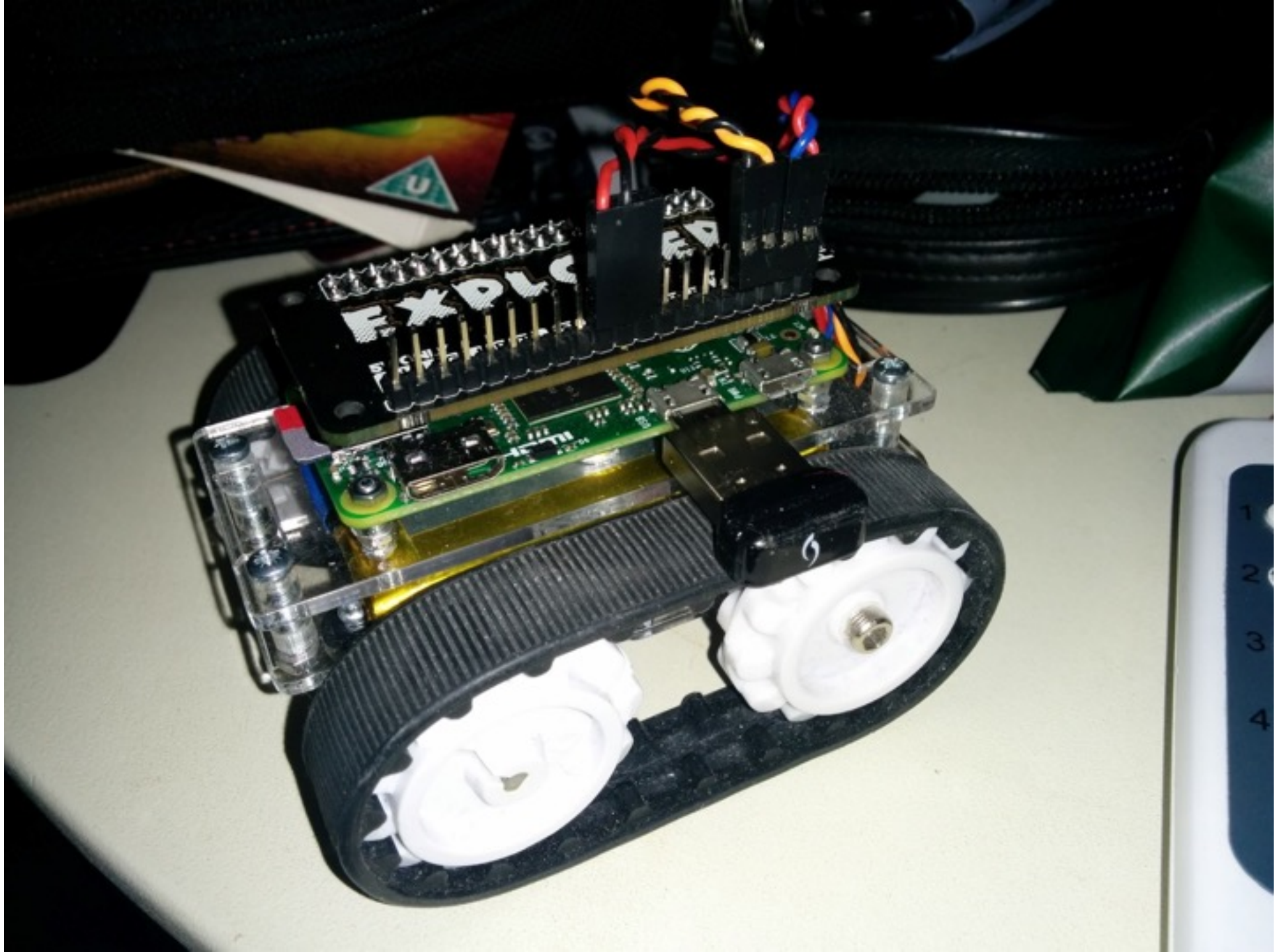


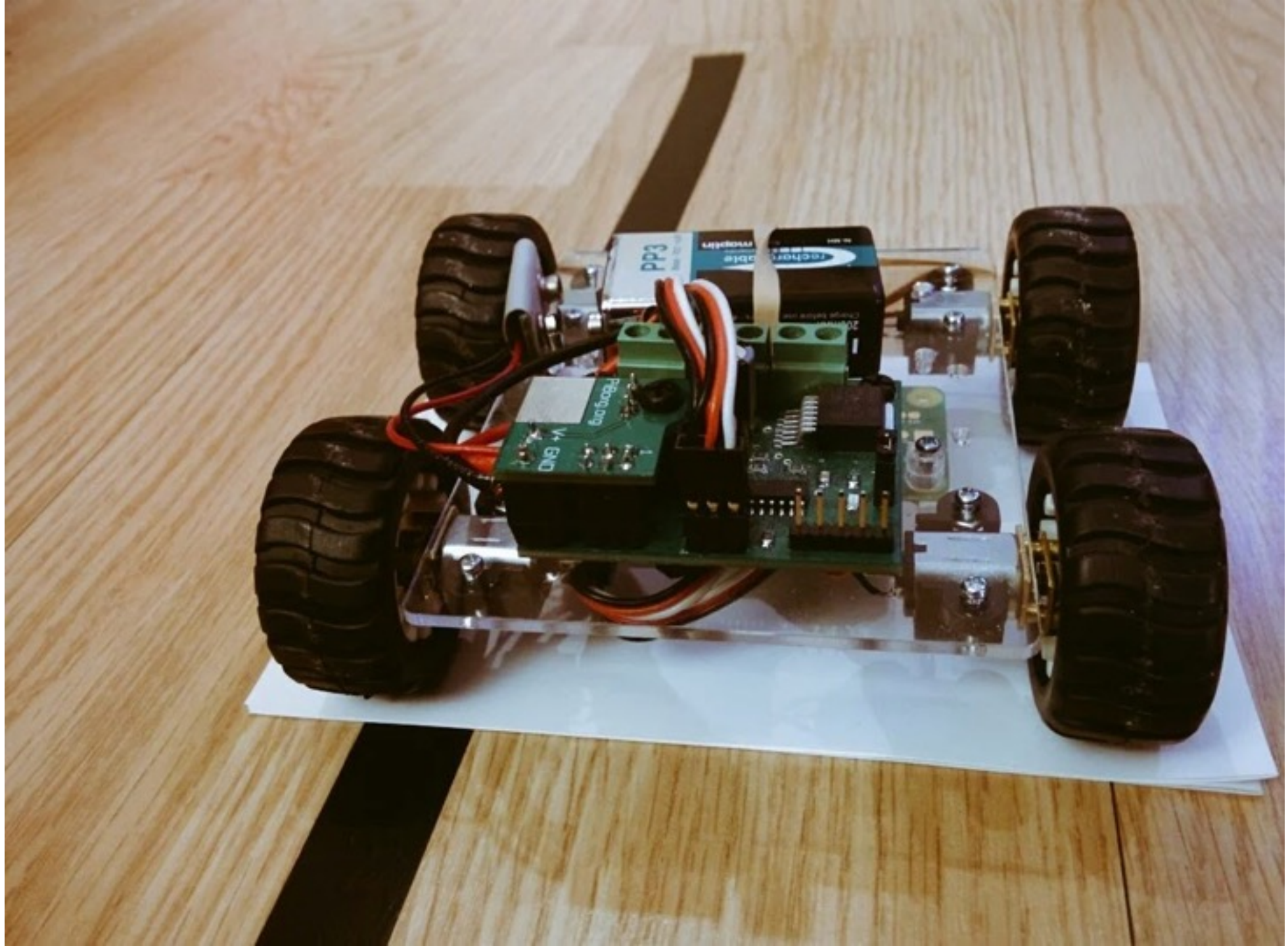


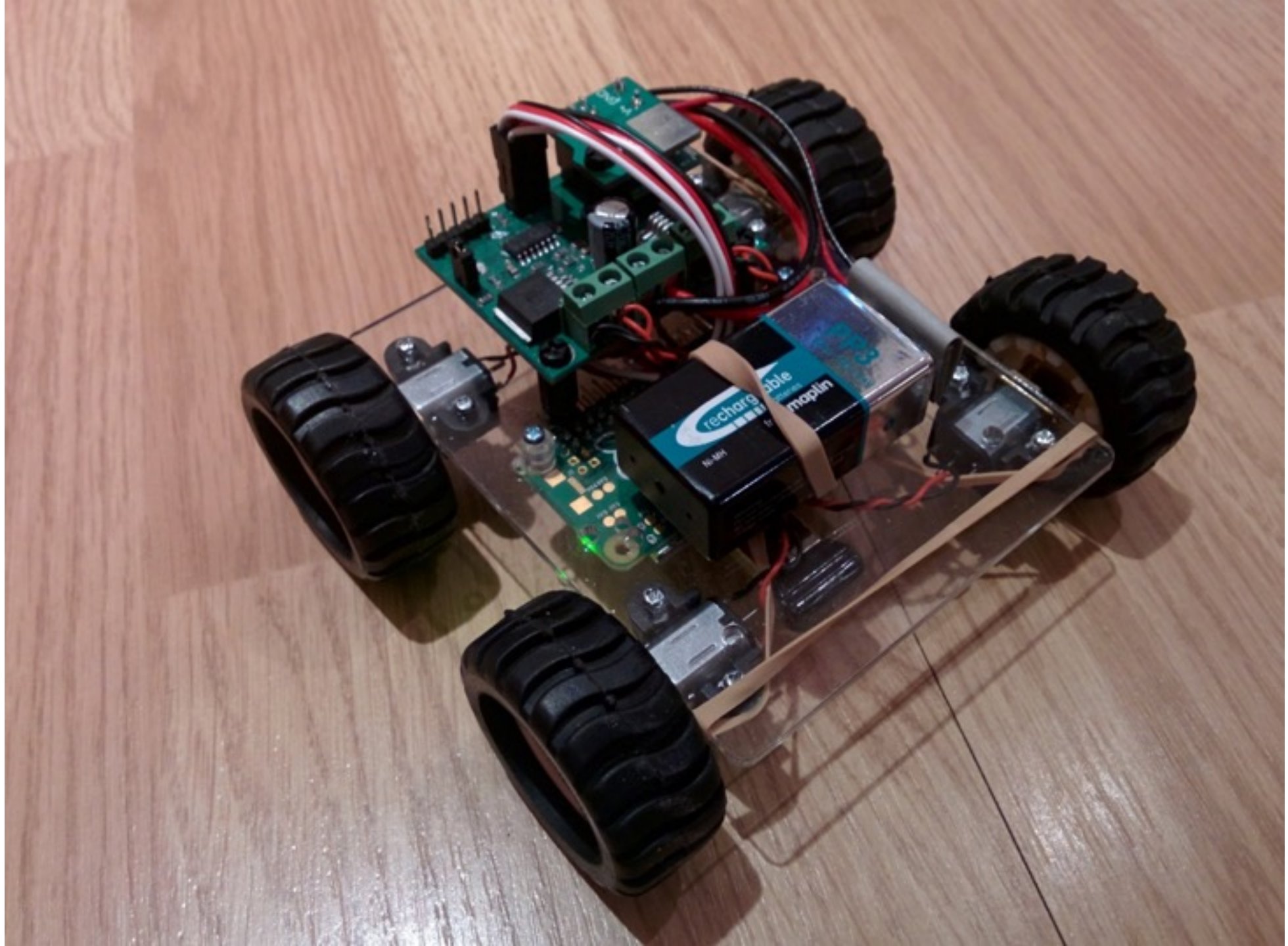
Micro Pi Noon

Sub A6 Balloon Popping Fighting Robots

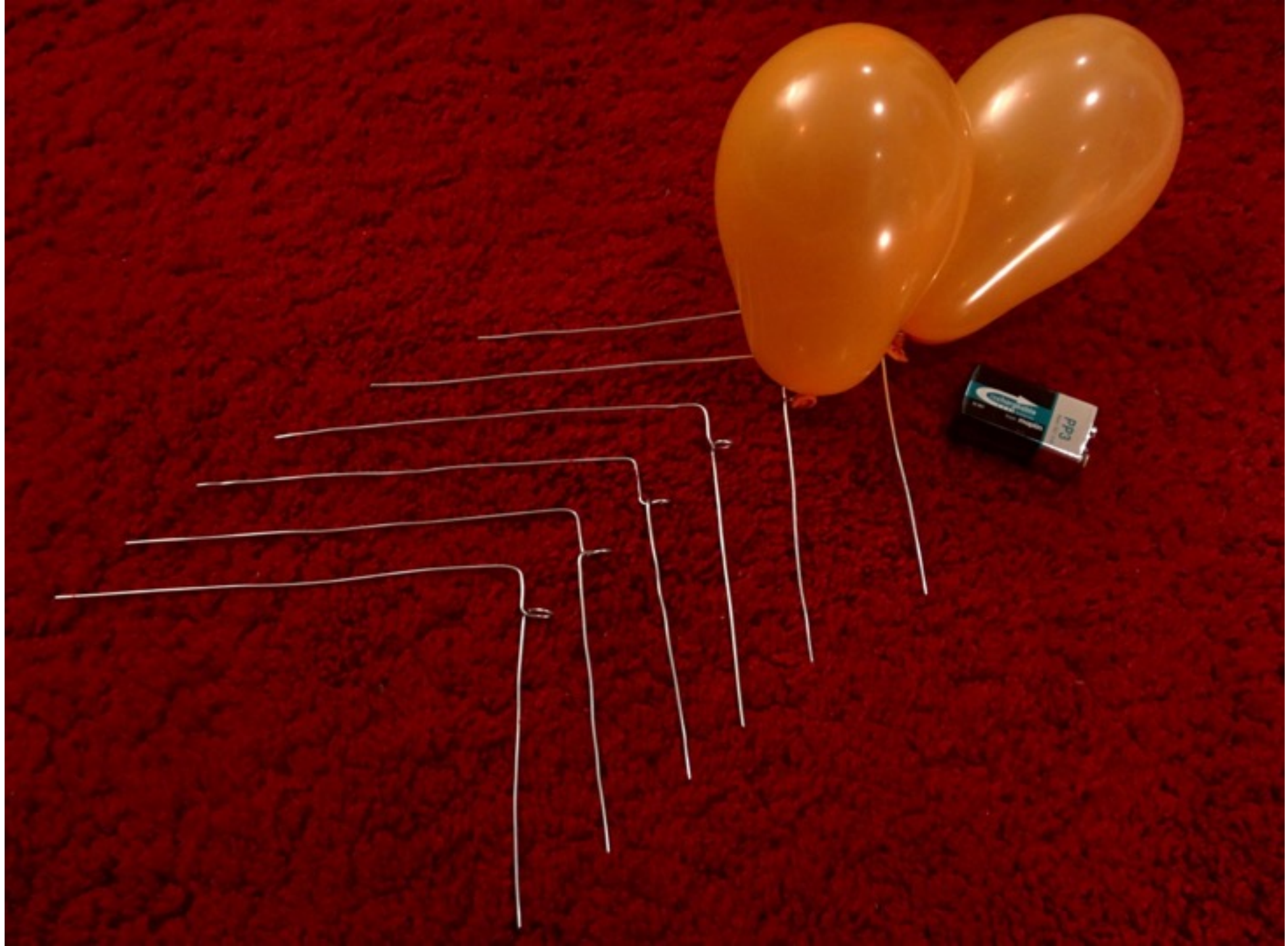
5V ONLY
ANALOG
1 2 3 4
INPUTS
1 2 3 4
5V
MOTOR
1
+ -

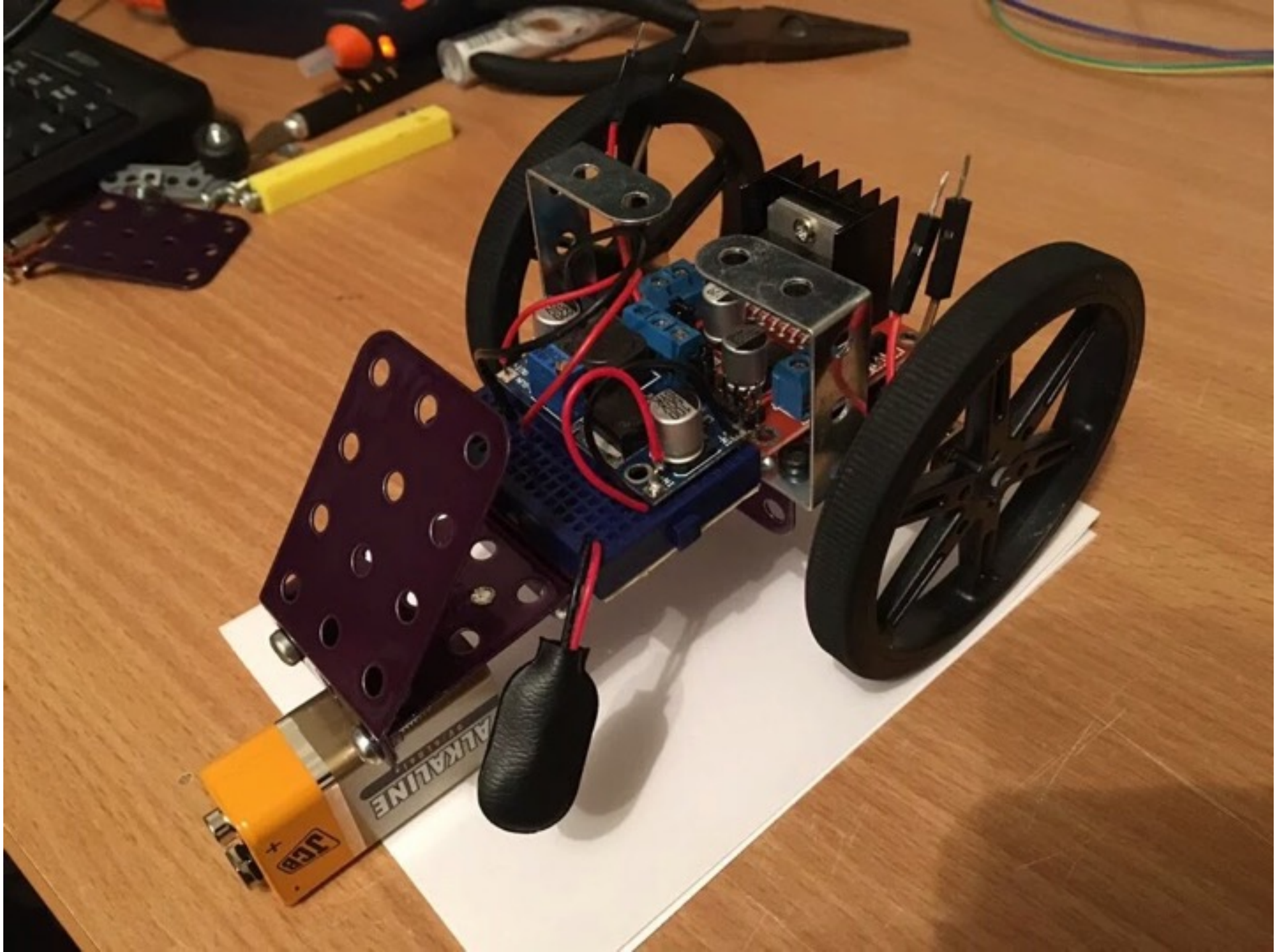



PP3
Fritzing.org



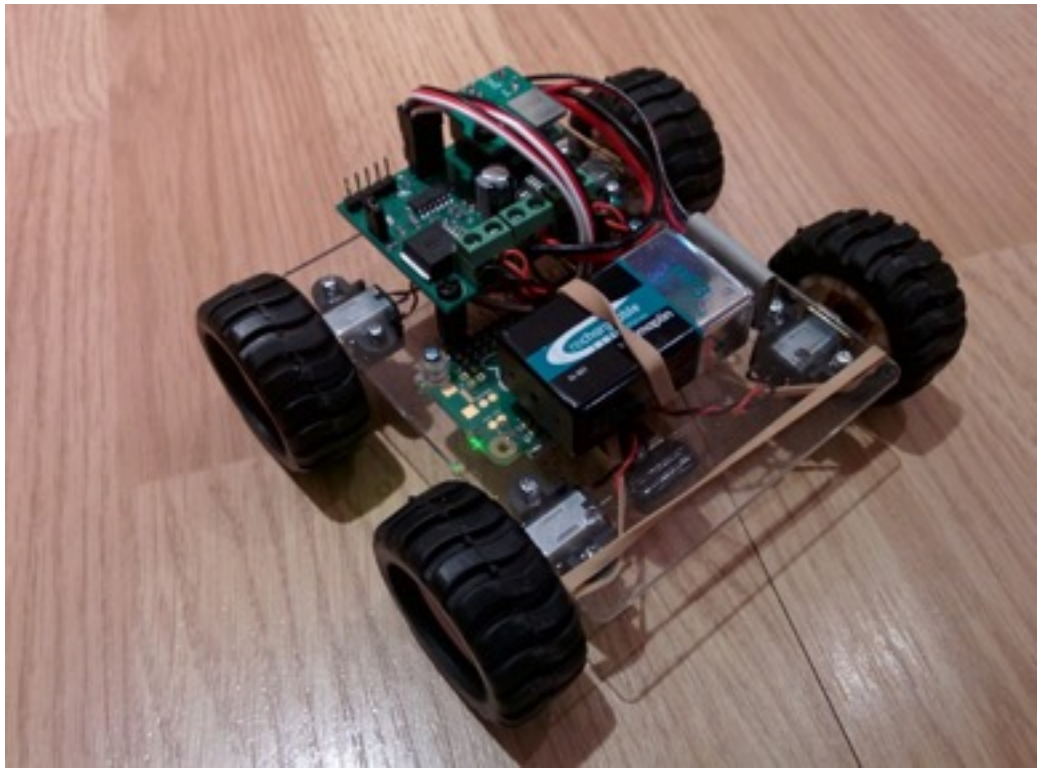
MICRO PI NOON
FIGHTING LEAGUE

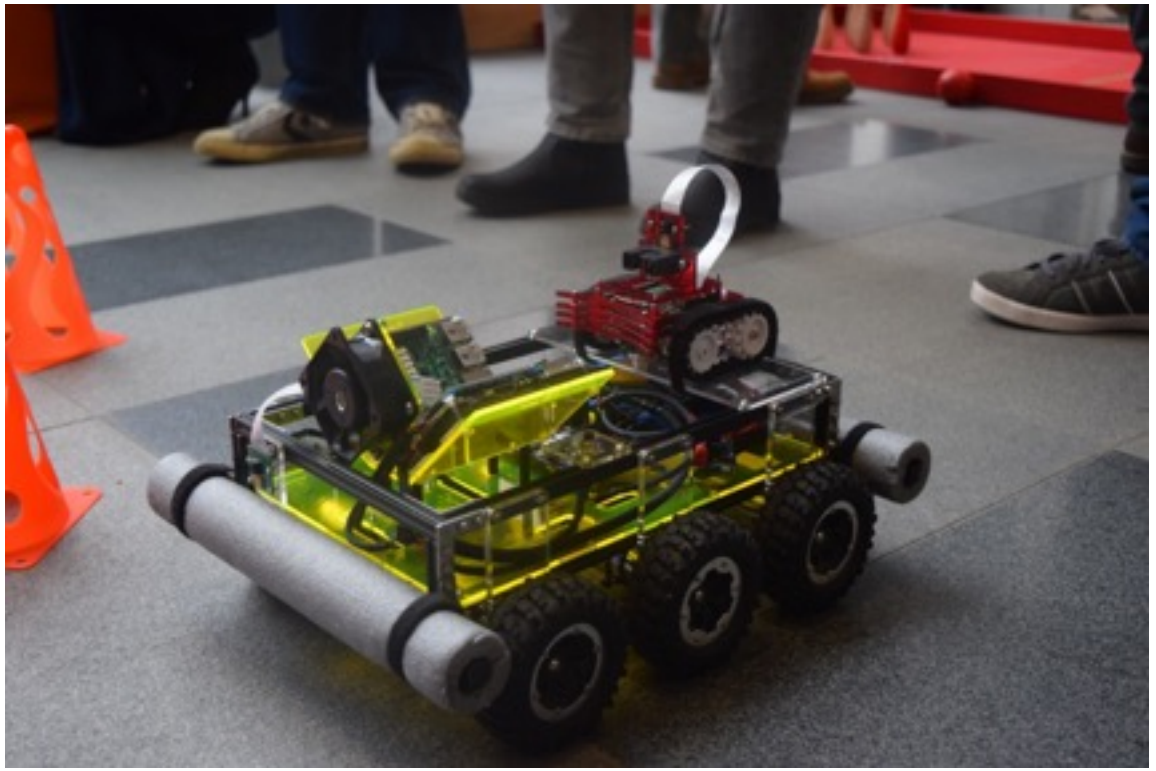



ALKALINE

SAFETY MATCHES
COOK'S MATCHES
WIPE-CLEAN BOX

Raspberry Pi Robotics





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