

Hardware for Softies

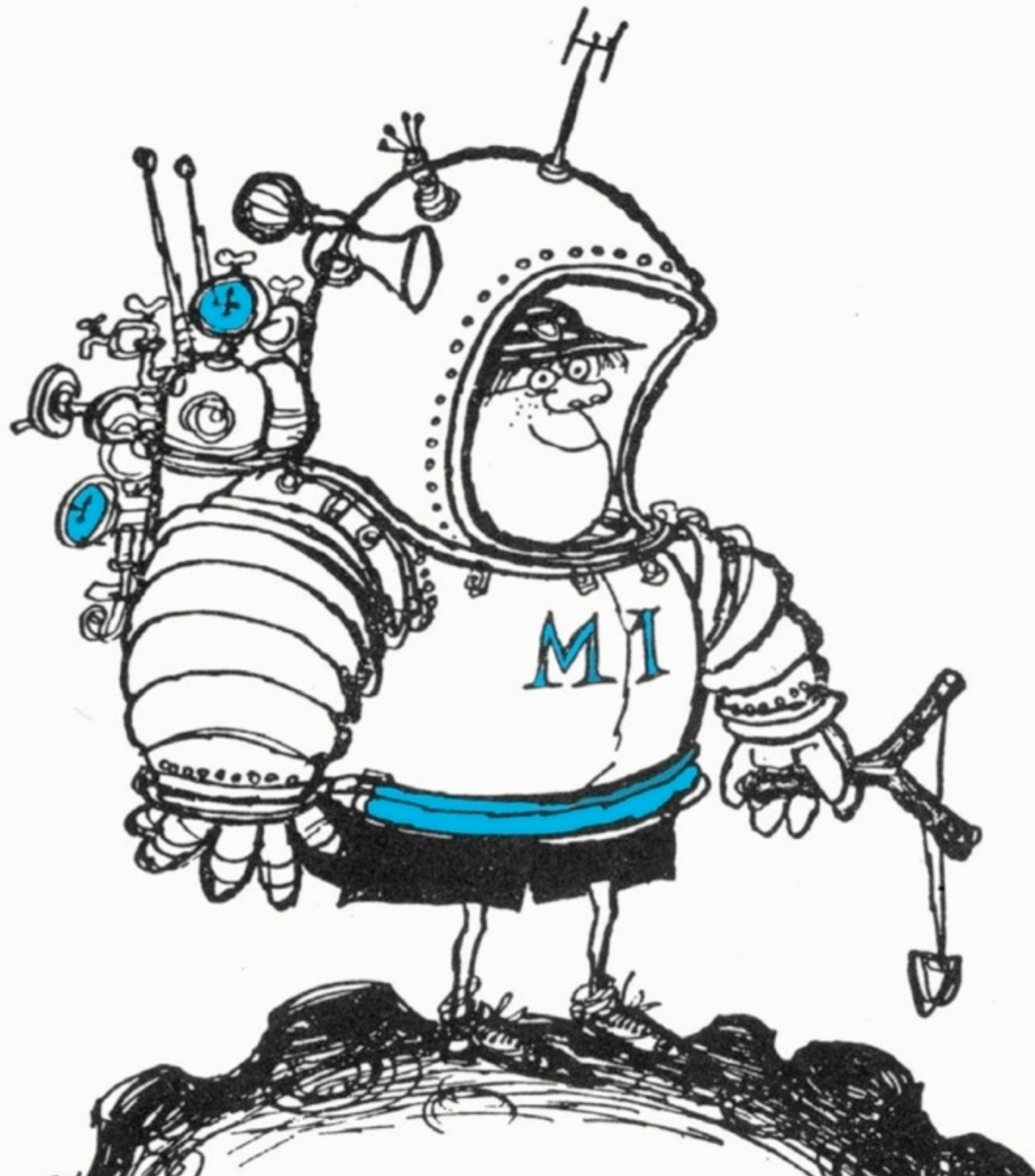
steve.freeman@higherorderlogic.com

nat.pryce@natpryce.com



**Not
original**

Quick**2**Wire



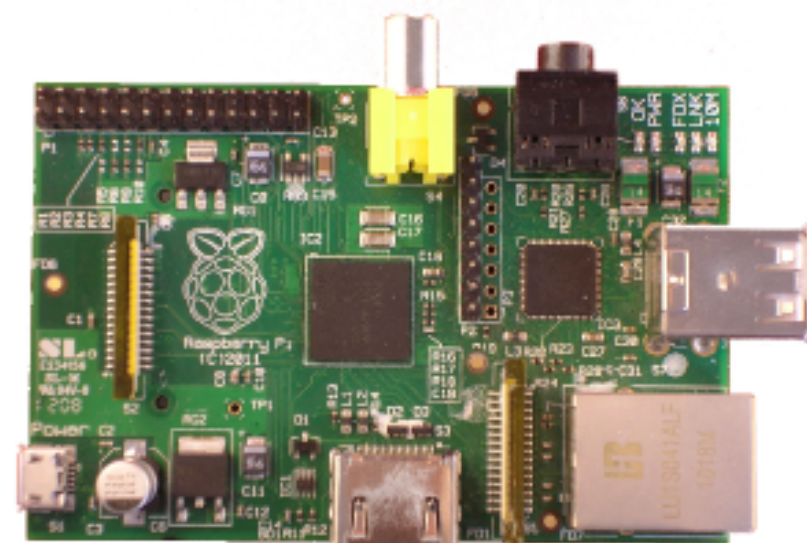
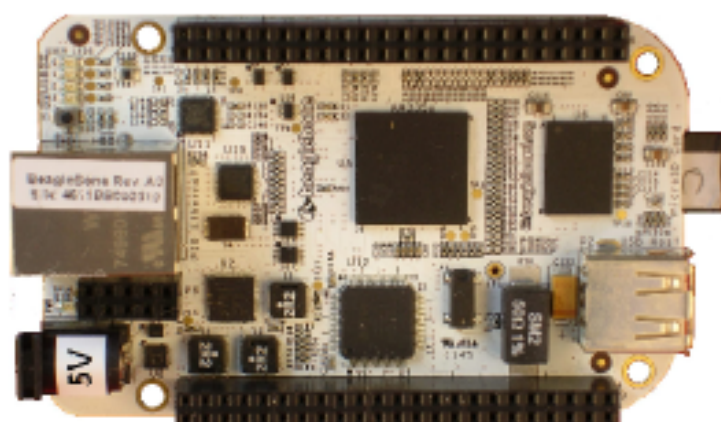
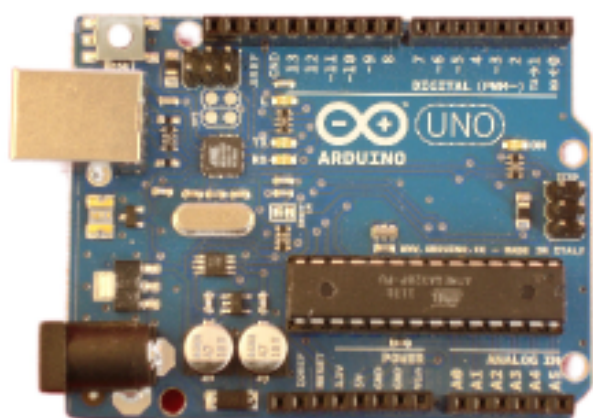






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Our hardware

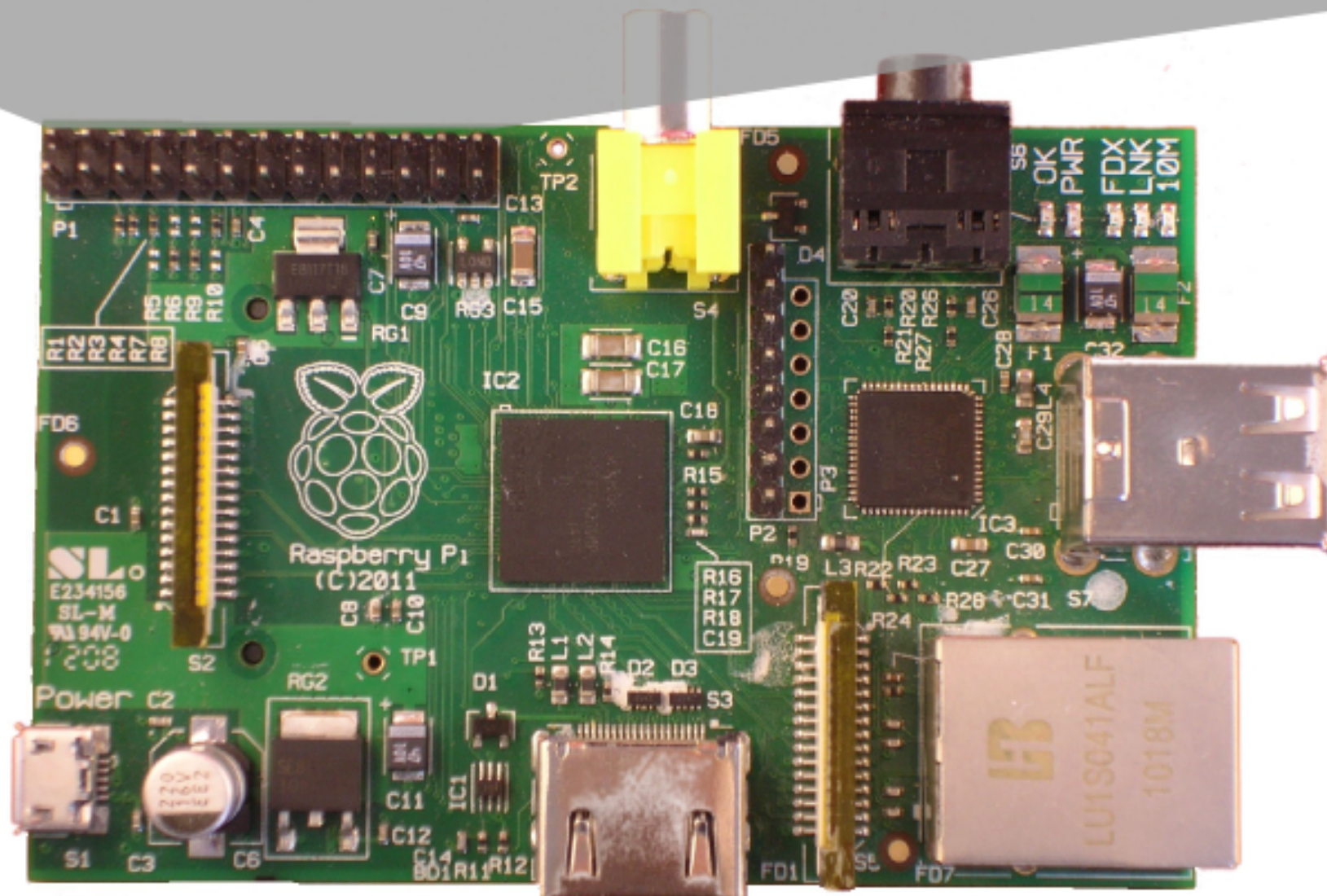


GPIO

I2C

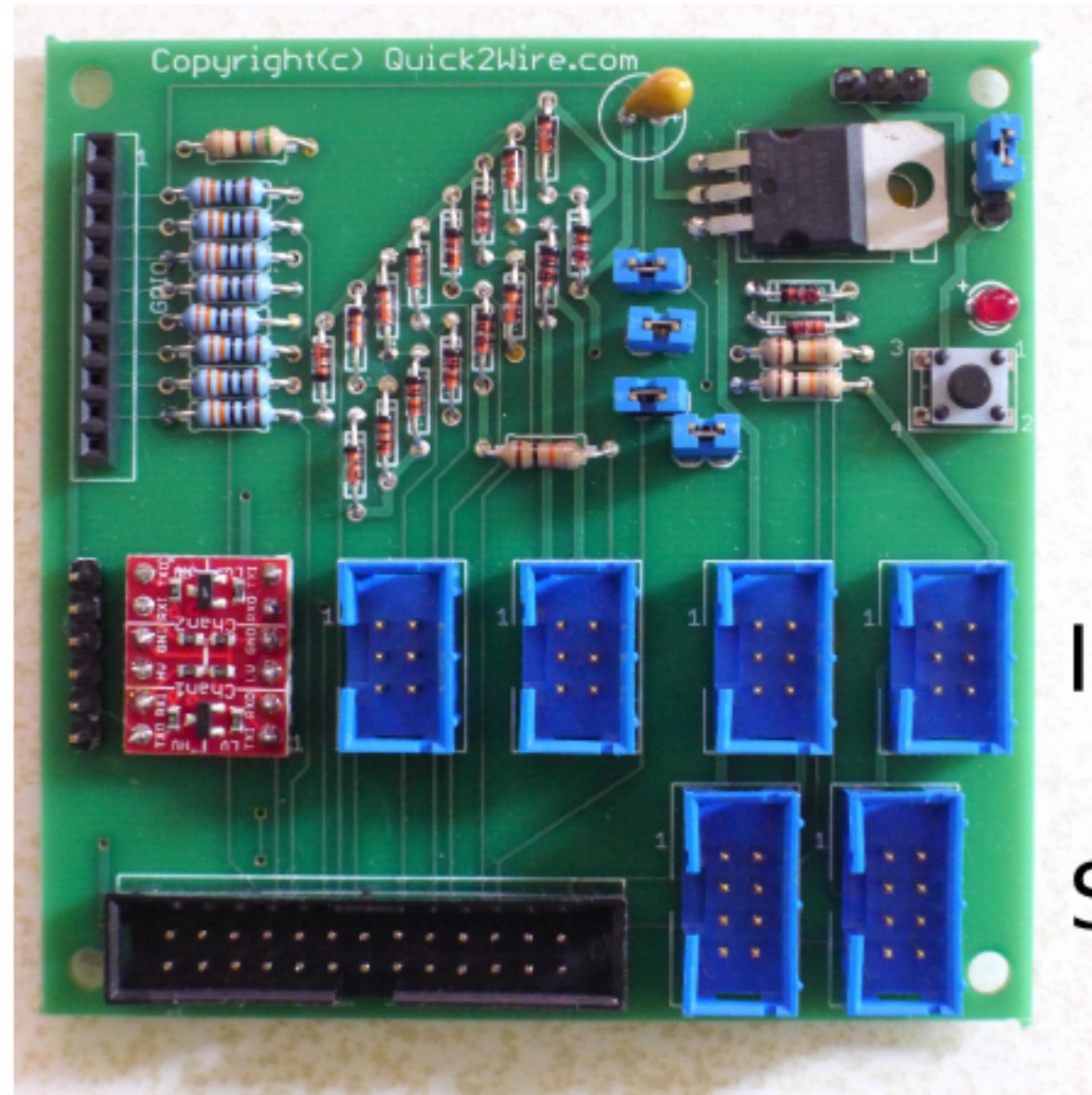
SPI

Serial



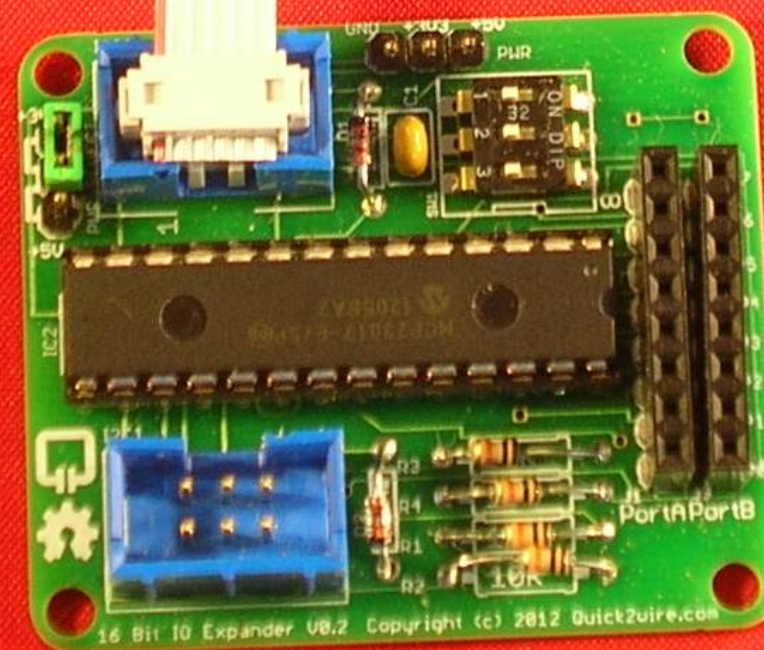
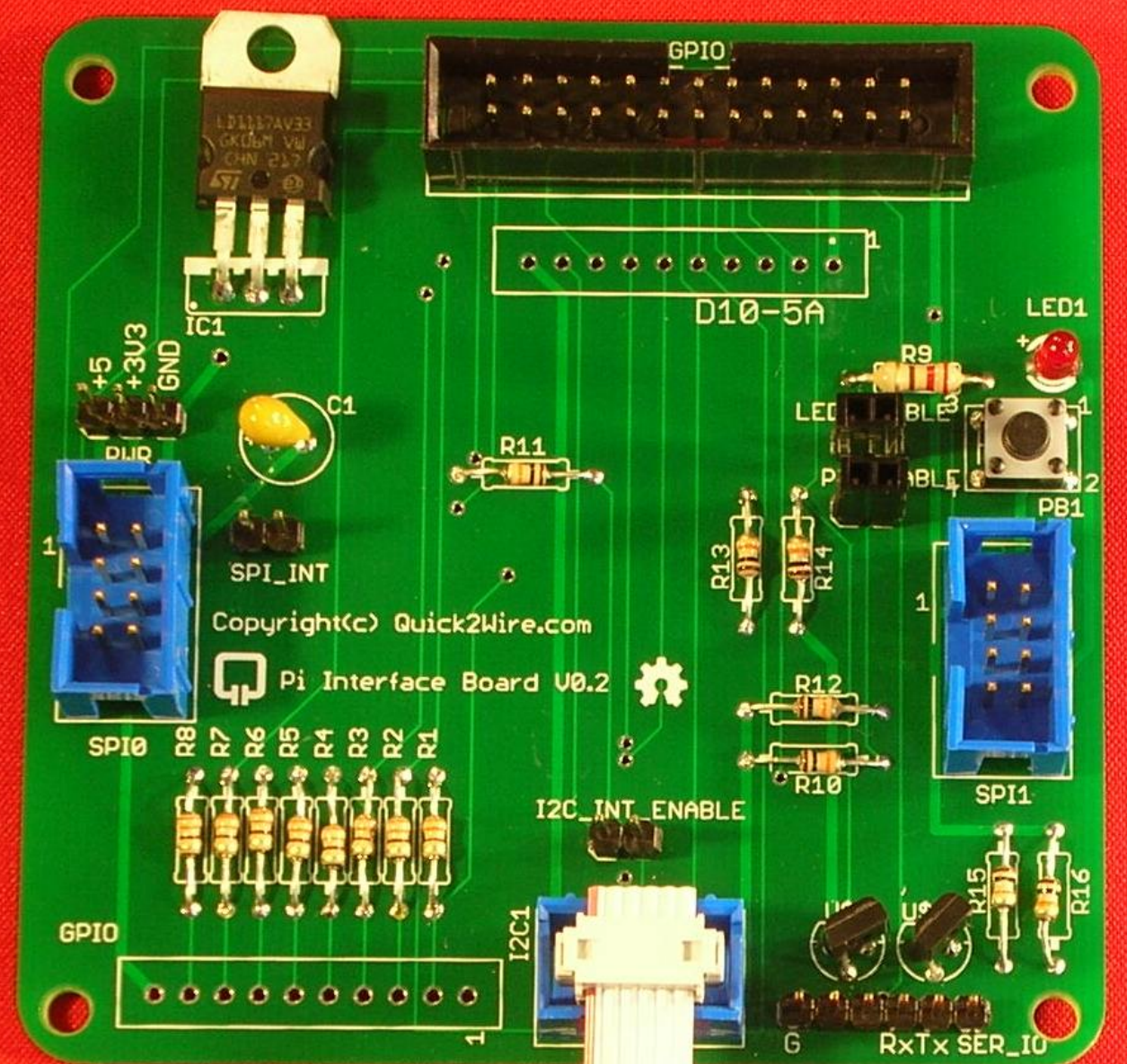
GPIO

Serial



I2C

SPI



Our Software





SCRATCH





SCRATCH



2.x?
3.x?

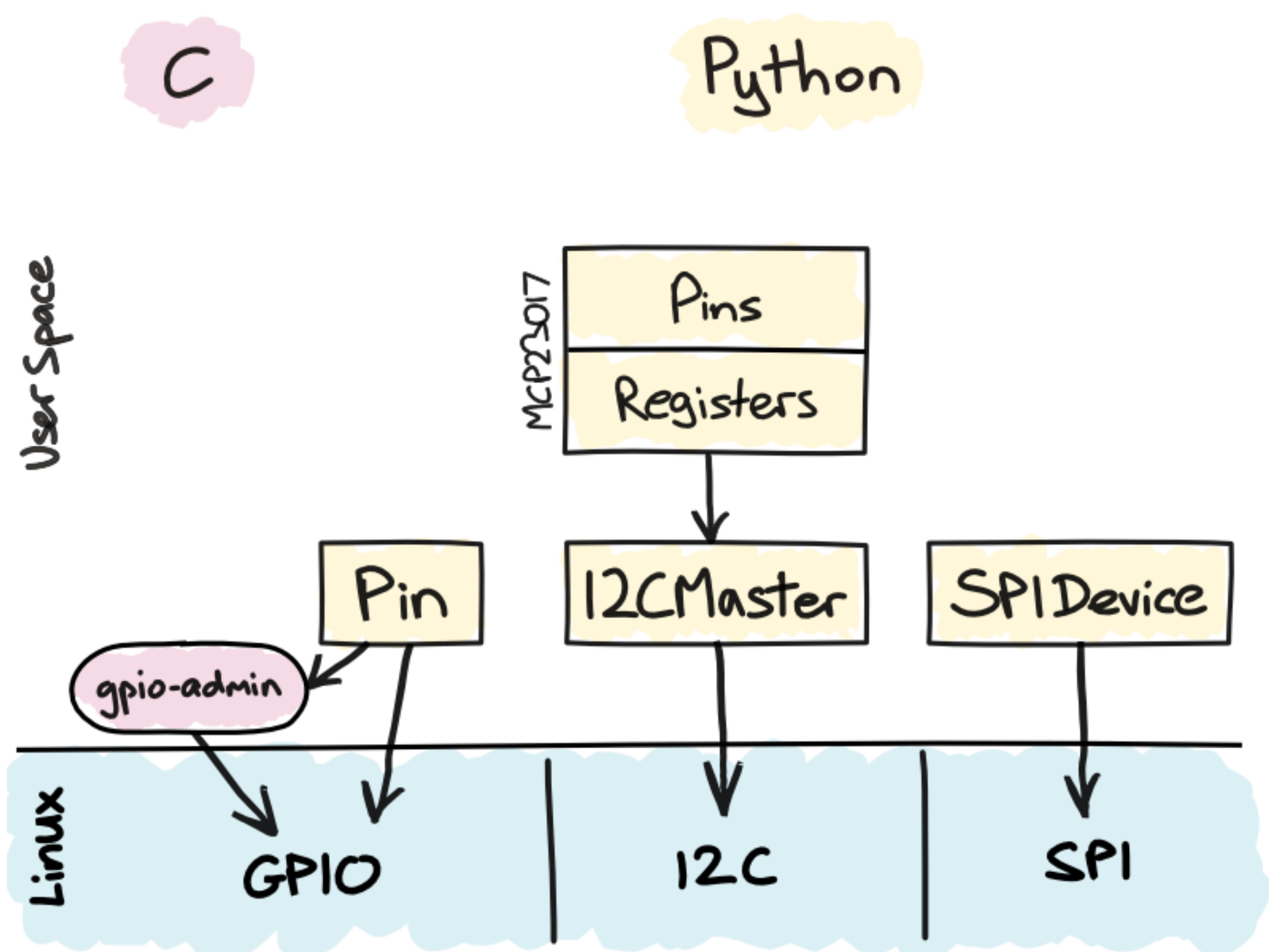
`bytes([1,2,3])`

Python 2

| | | | | | | | | |
|----|----|----|----|----|----|----|----|----|
| 5B | 31 | 2C | 20 | 32 | 2C | 20 | 33 | 5D |
|----|----|----|----|----|----|----|----|----|

Python 3

| | | |
|----|----|----|
| 01 | 02 | 03 |
|----|----|----|



```
chip_address = int(sys.argv[1], 16)
```

```
forward_rq = urllib.request.Request("http://10.0.0.2:54321/slide-forward")
```

```
with I2CMaster() as master:
```

```
    chip = mcp23017.Registers(master, chip_address)
```

```
    print("initialising ", str(chip_address))
```

```
    chip.write_register(IODIRA, 0xFF)
```

```
    chip.write_register(GPPUA, 0xFF)
```

```
    chip.write_register(IPOLA, 0xFF)
```

```
    print("ready")
```

Future plans

Pythonic π -calculus for the RaspberryPi

G. Lewandowski, D. Bouvier, R. McCartney, K. Sanders, and B. Simon.

Commonsense computing (Episode 3): Concurrency and concert tickets.

In Proceedings of the Third international Workshop on Computing Education Research (Atlanta, Sept. 15-16). ACM Press, New York, 2007, 133-144. ISBN: 978-1-59593-841-1.

<http://is.gd/yHMn1H>


```
import time
```

```
import random
```

```
from quick2wire.gpio import Pin
```

```
from quick2wire.tasks import task, Channel, par, seq, main
```

```
@task
```

```
def LED(pin, input):
```

```
    while True:
```

```
        pin.value = input.recv()
```

```
@task
```

```
def Toggle(rate, output):
```

```
    state = False
```

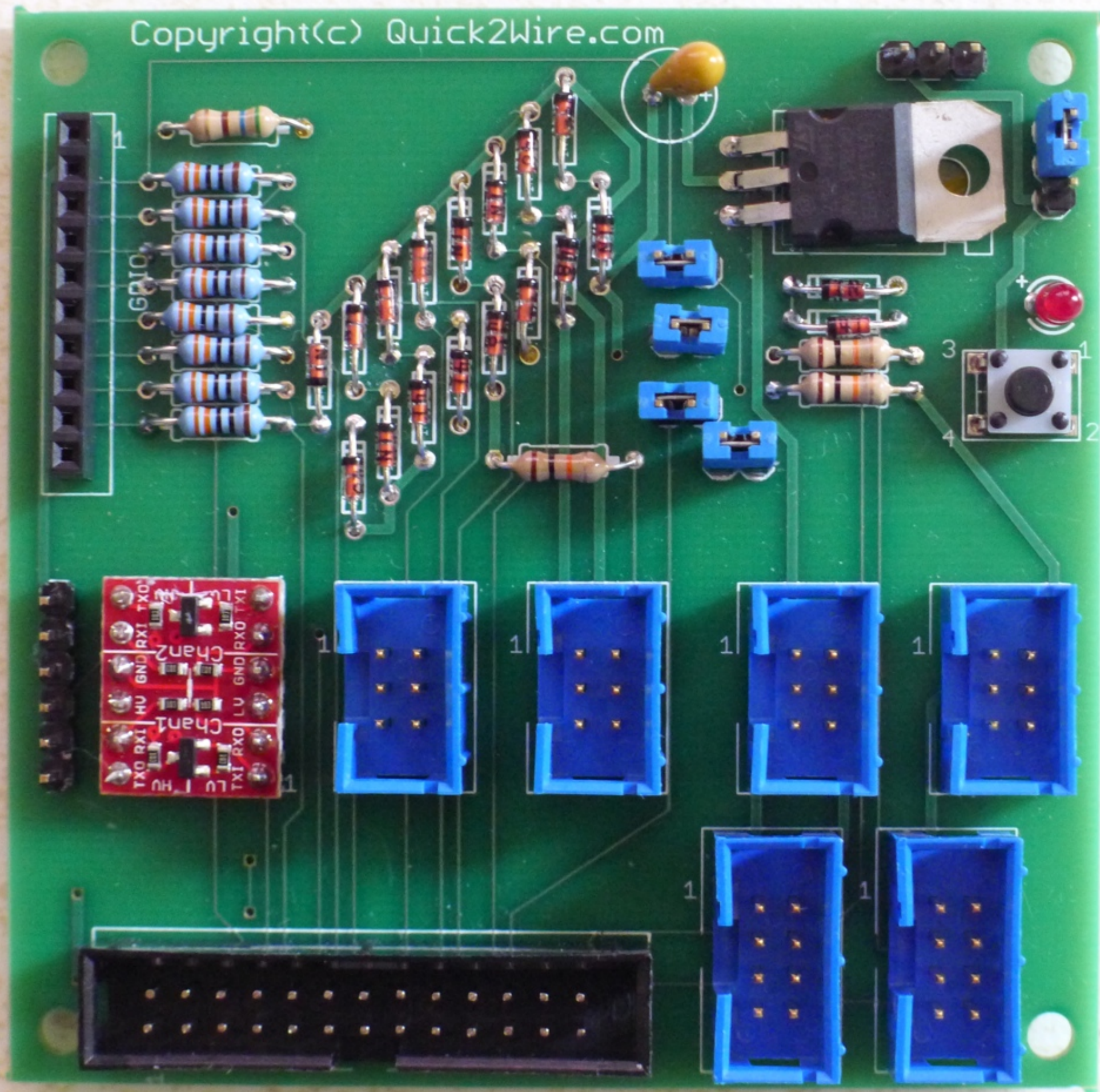
```
    while True:
```

Lessons learned

Be aware of the physical



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Even bare boards need UX

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File

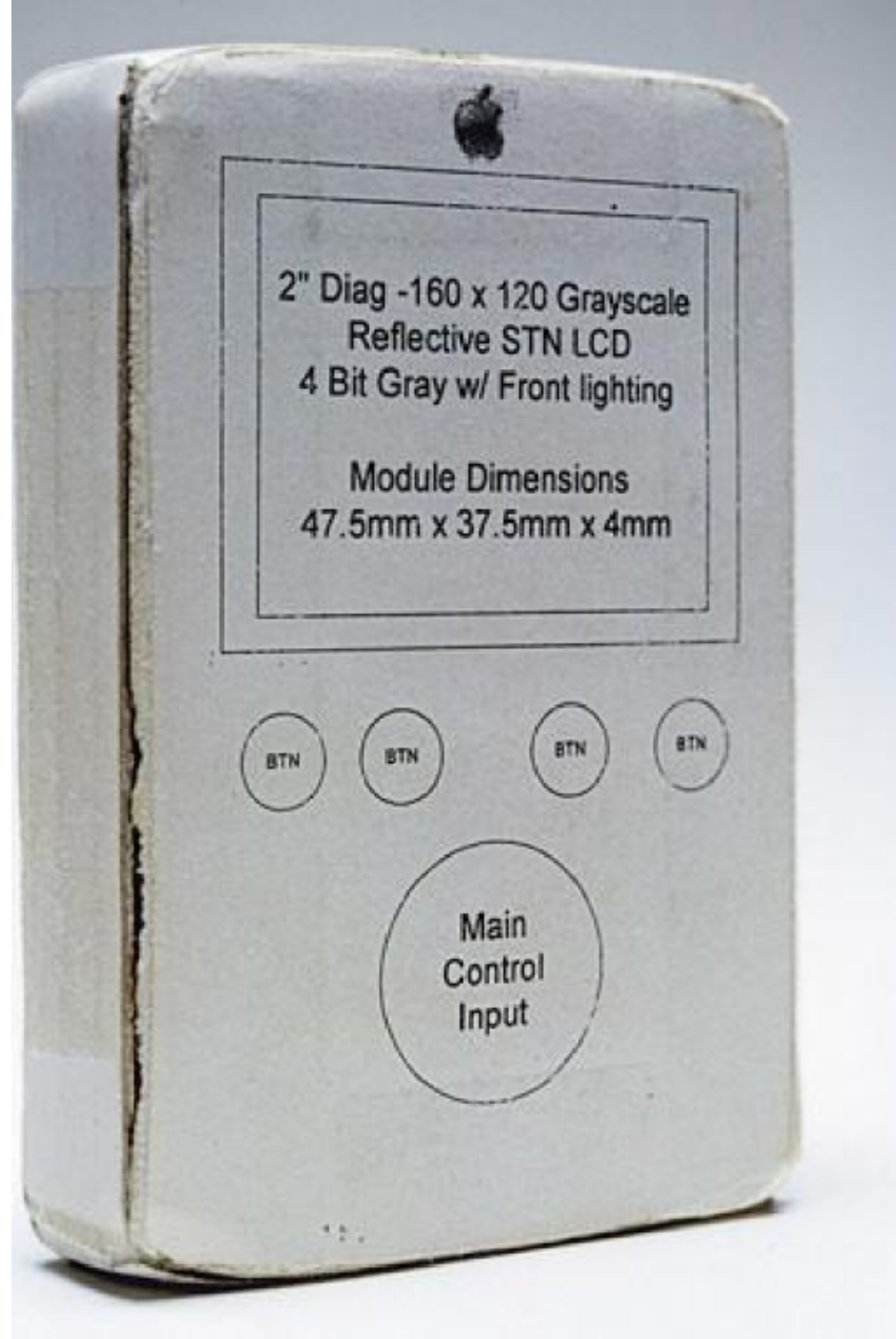
cc back

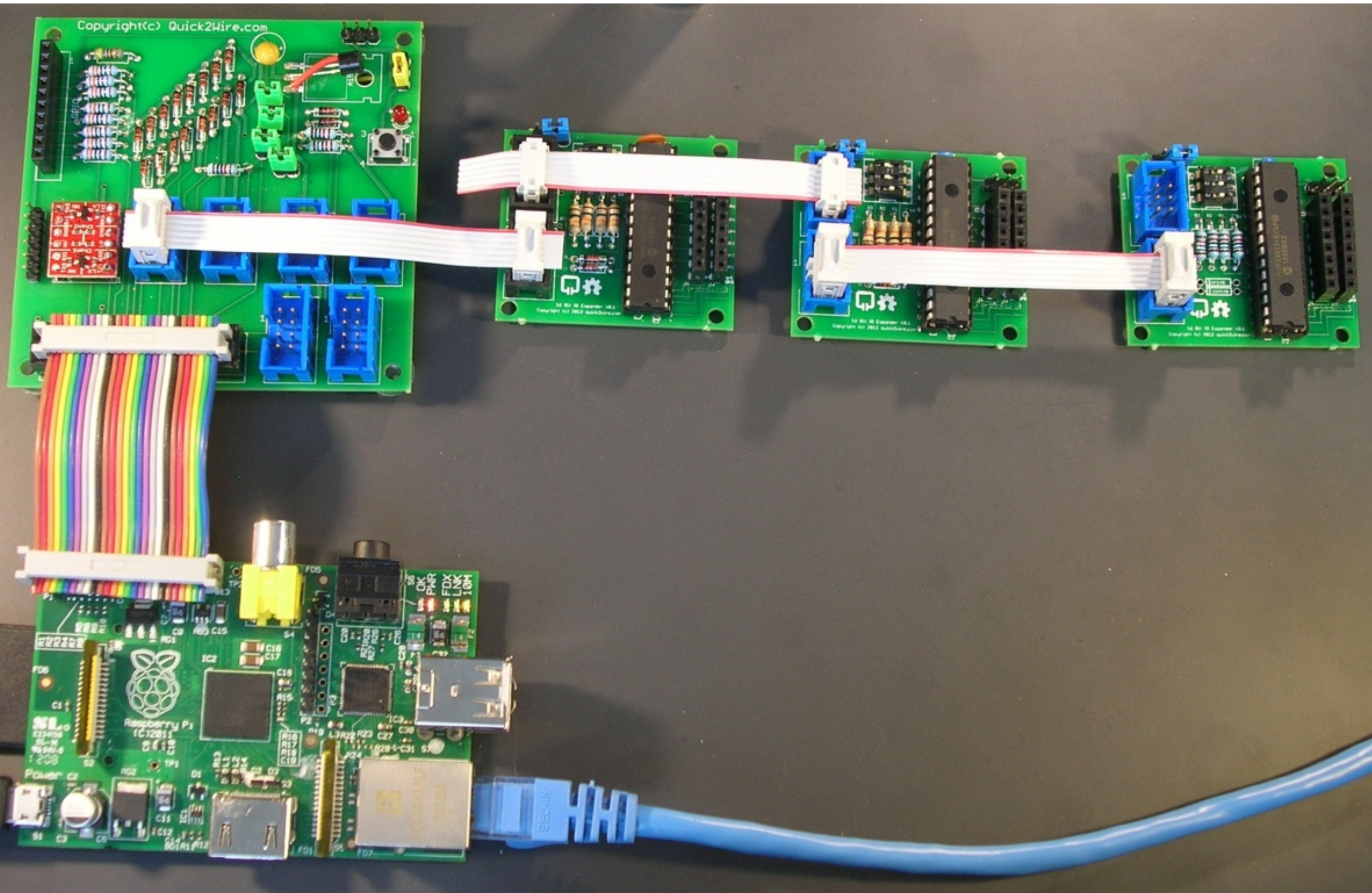


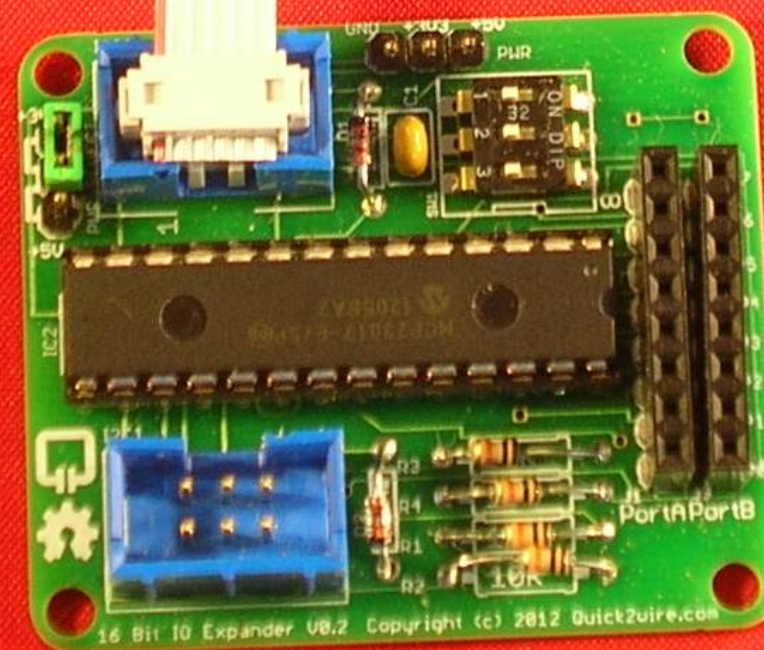
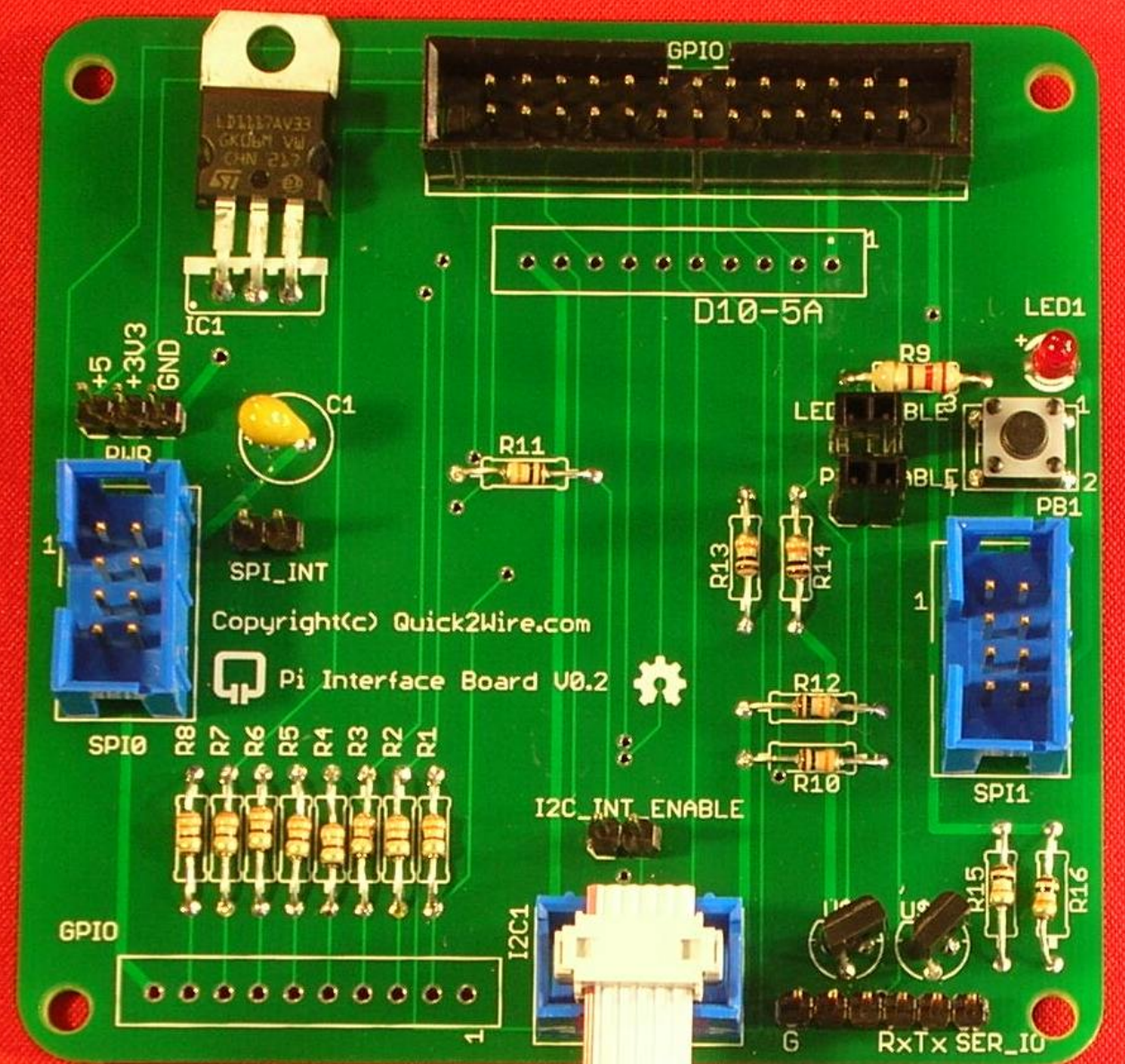
+ New

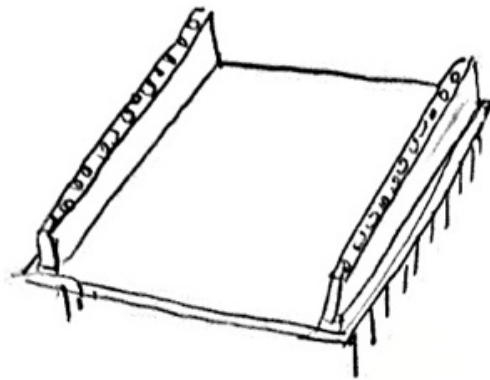
- [icon] =
- [icon]
- [icon]
- [icon]
- [icon]
- [icon]
- [icon]
- [icon]
- [icon]
- [icon]

Delete...

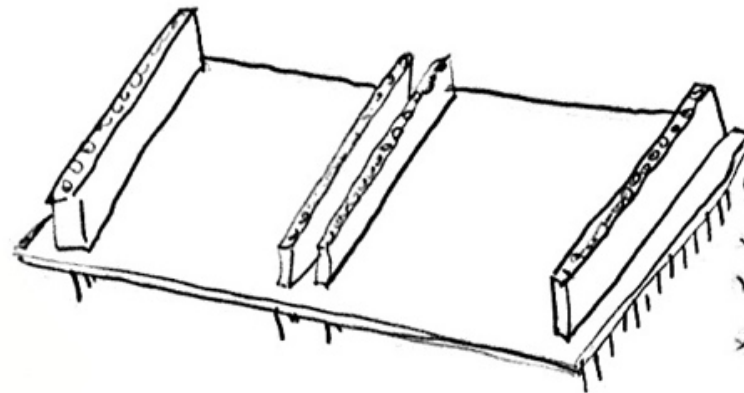




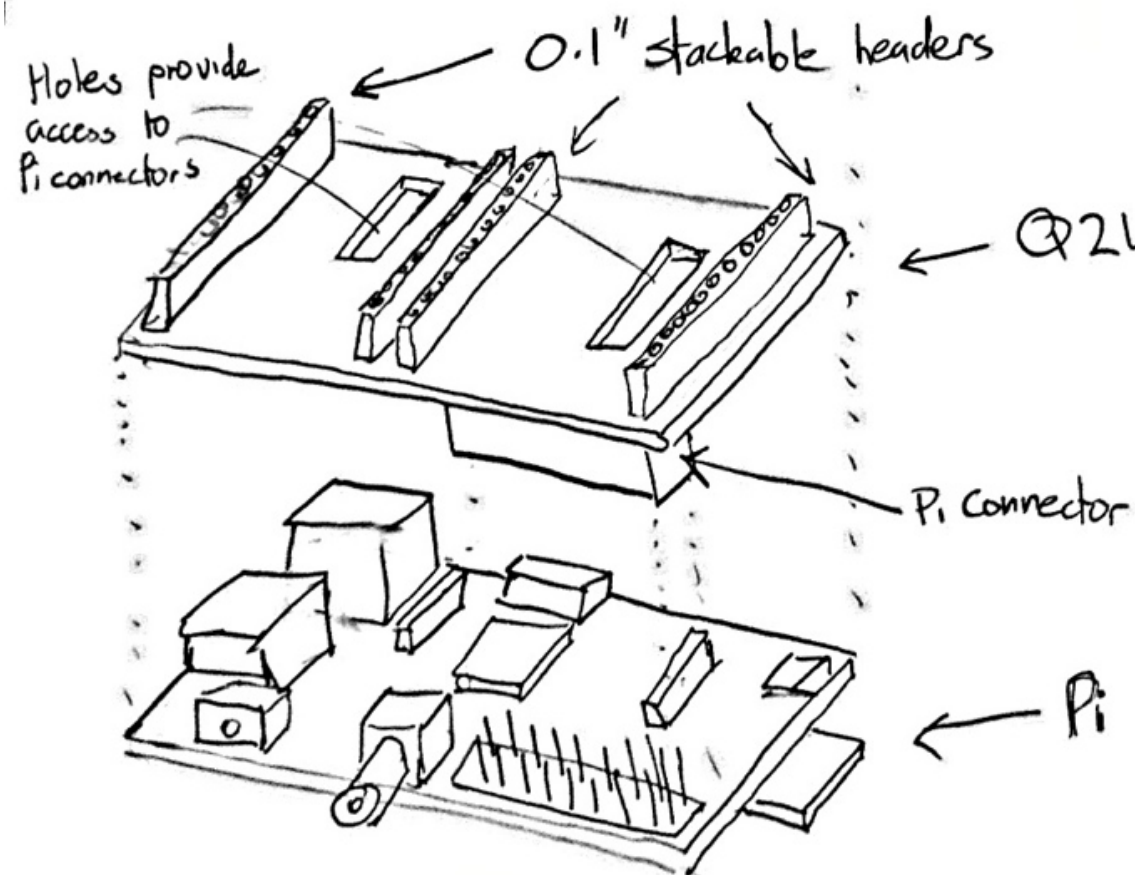




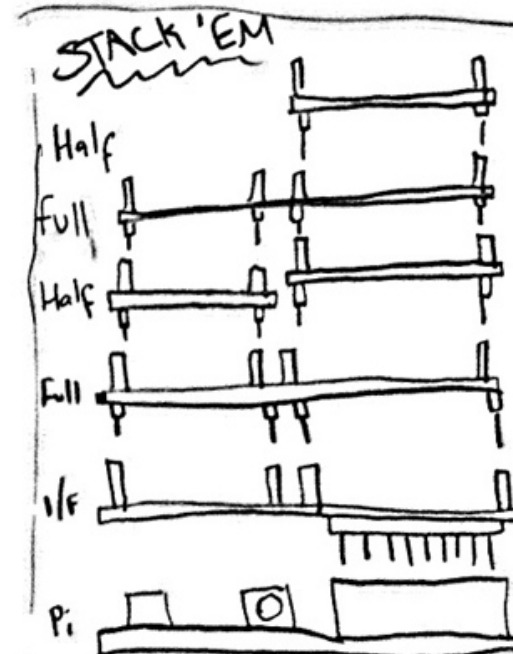
Half size board



Full size board

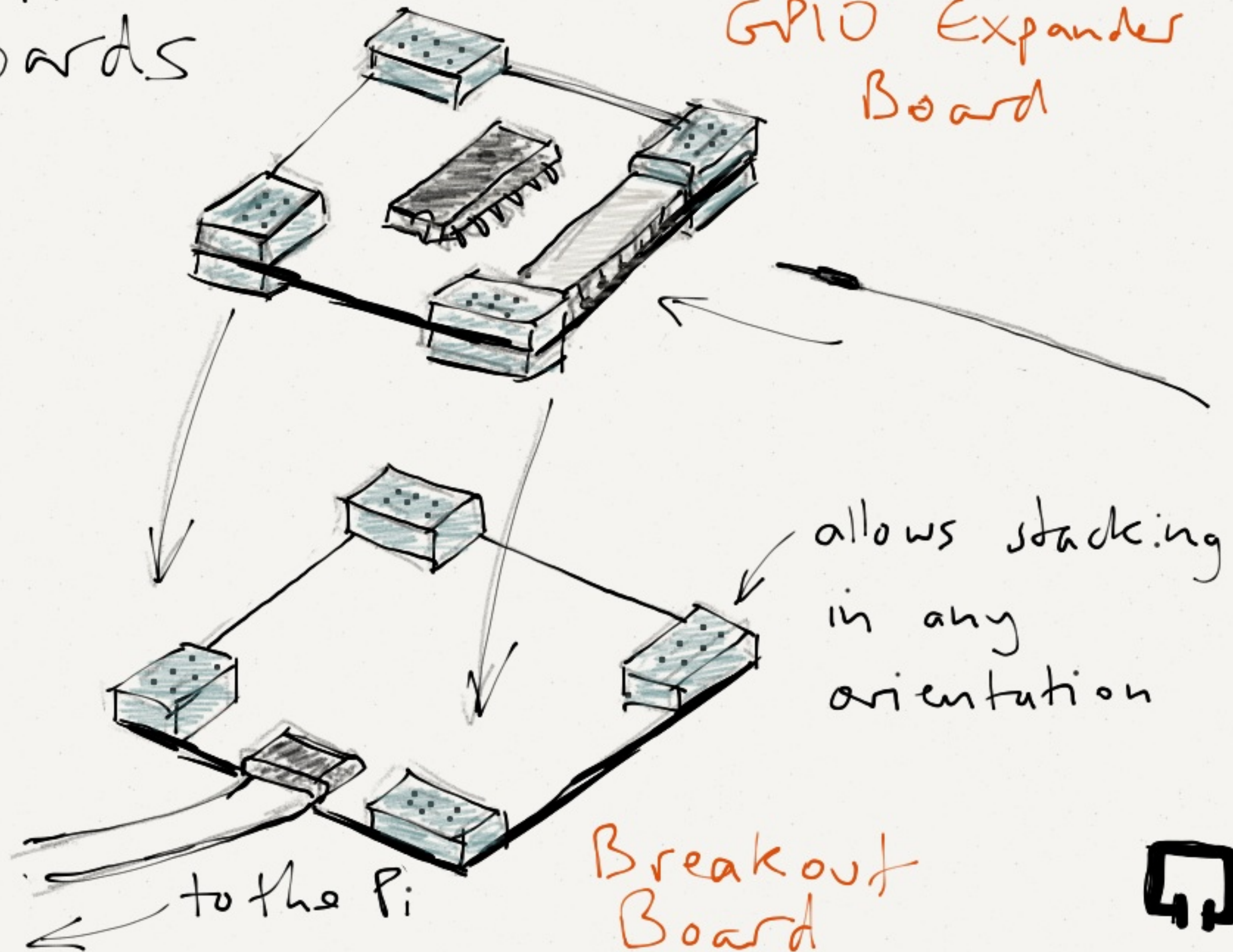


Q2W 1/F BOARD

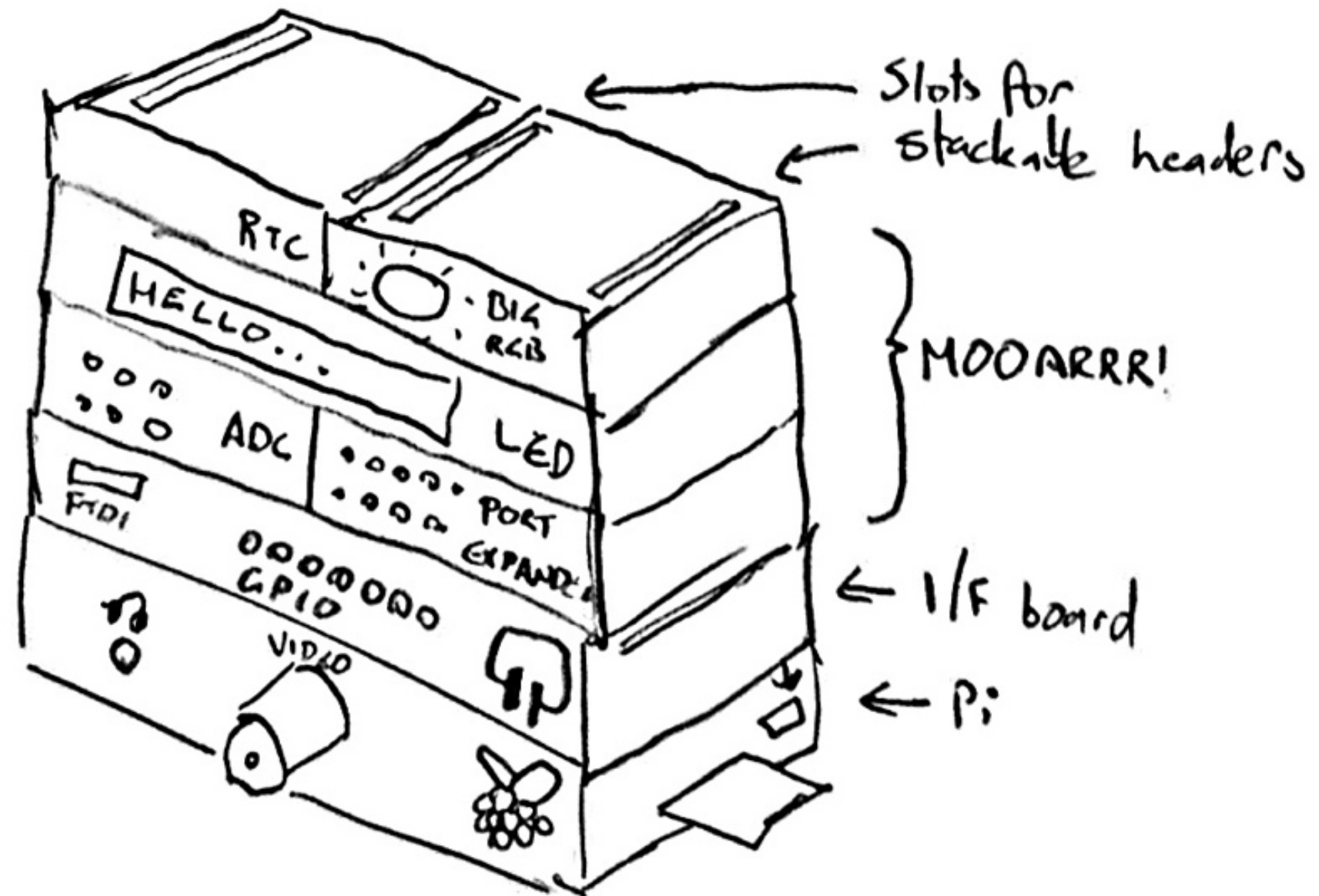


"Waffle" Boards

GPIO Expander
Board

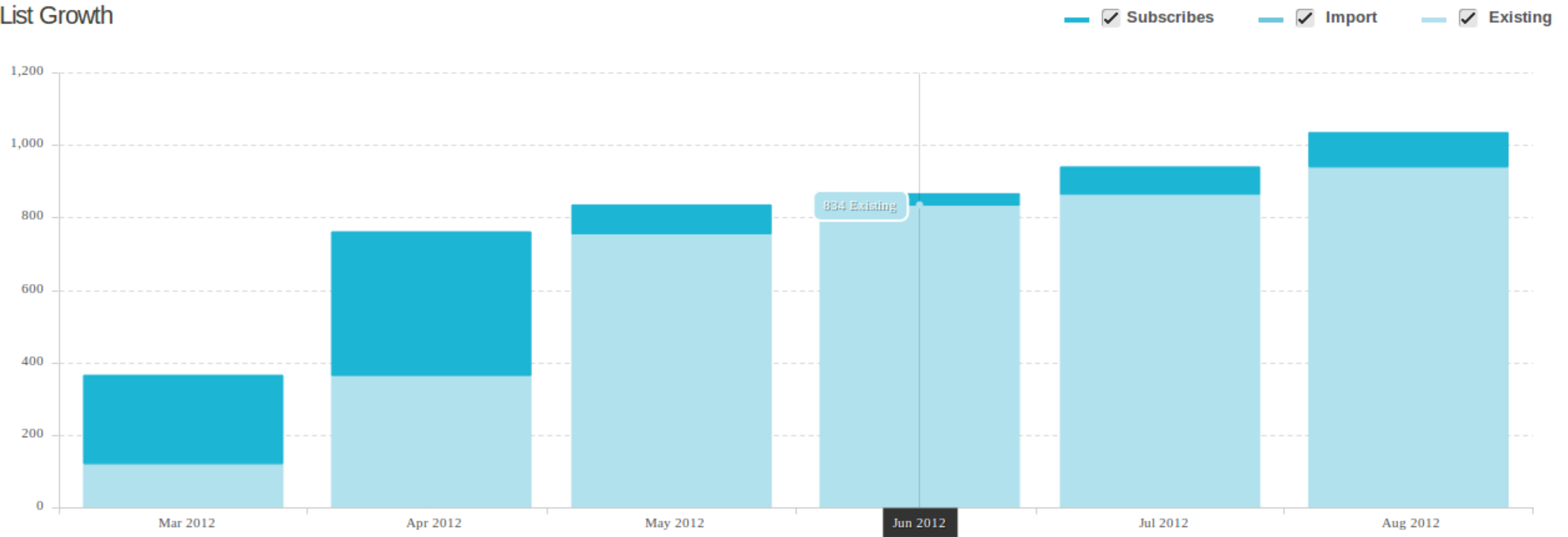


Pile 'em up!



It's hard to apply
Lean Startup
to hardware

List Growth



Kit news #6

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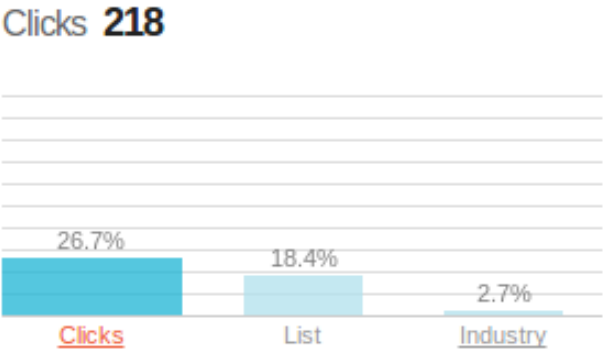
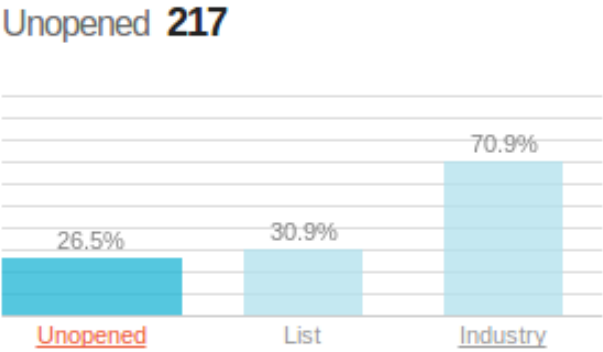
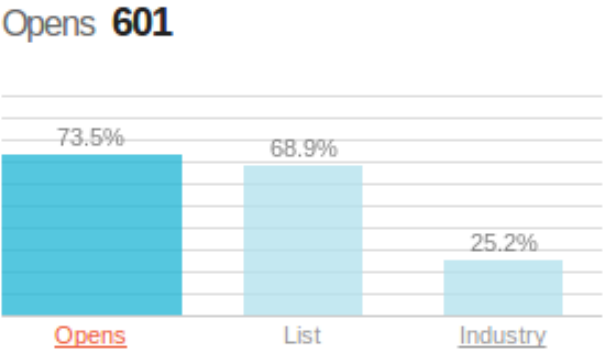
Change Report ▼

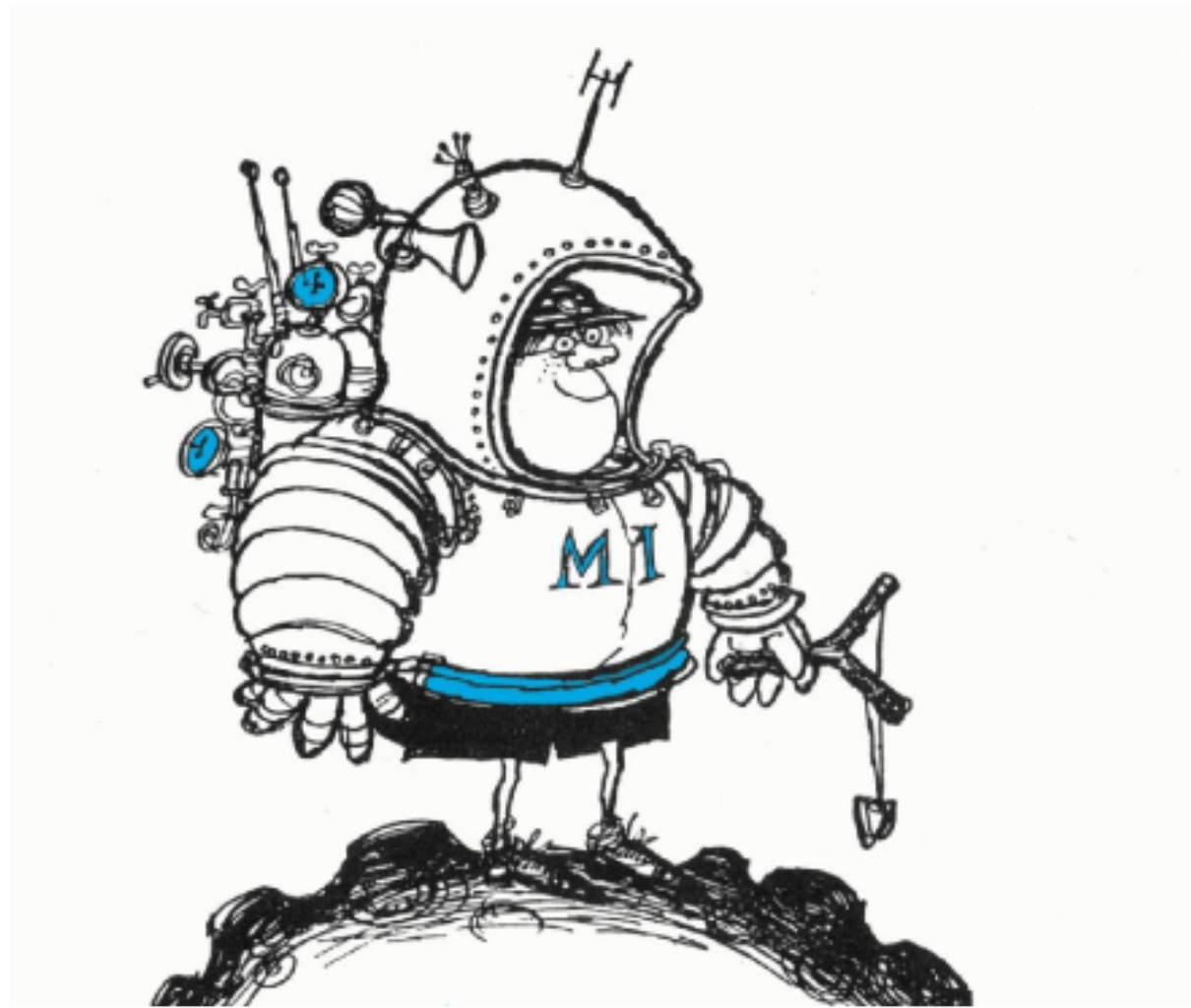
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Recipients

818

View





Balancing teams is harder



Freedom to tinker



<http://www.modern-homefurniture.com/office-cubicles-reviews.html>

