Tips for Making, Marketing, and Selling Your Hardware
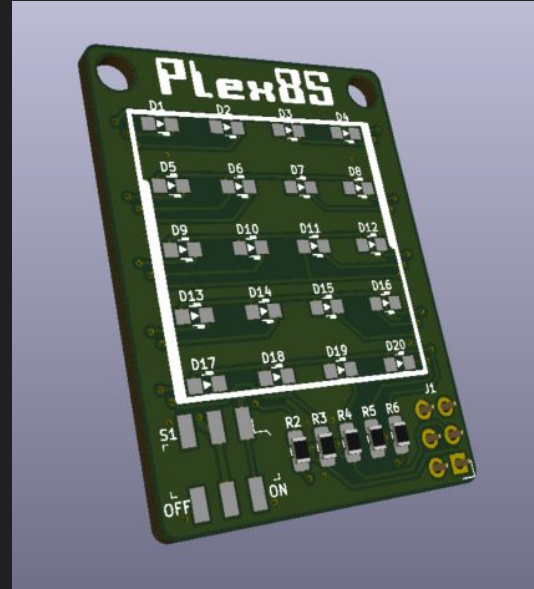
(Ideally, with free and/or open source tools)

Lots to cover...

- Making your widget
- Manufacturing your widget
- Selling your widget
- Marketing your widget

F = Free

OS = Open Source

The Design Stage

- PCB
  - KiCad (F, OS)
- Mechanical
  - FreeCAD (F, OS)
  - Fusion 360 (F for <$100k/yr)
- MCU toolchains/compilers
  - AVR-GCC (F, OS)
  - GNU ARM Embedded Toolchain (F, OS)
  - RISC-V GNU Toolchain (F, OS)

- Development environments
  - Eclipse (F, OS)
    - Lots of plugins
  - Atom (F, OS)
    - PlatformIO (F without debugging, OS)
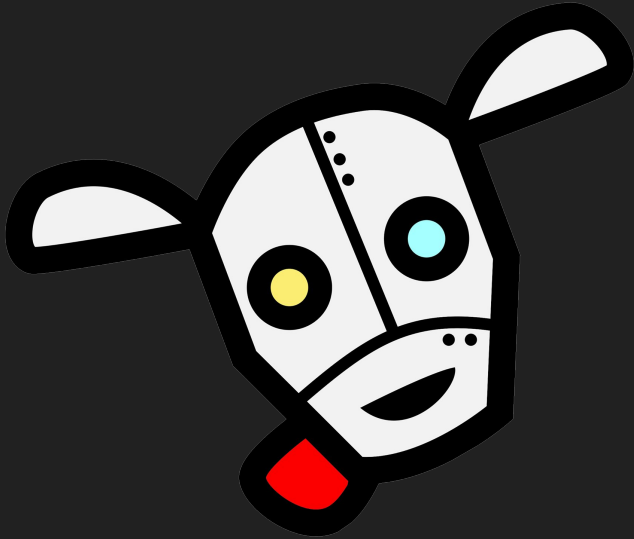 - VSCode (F, OS)
    - PlatformIO

Manufacturing

- Move to Shenzhen
- Pitch SparkFun, Adafruit
- Small turnkey manufacturing
  - Seeed Studio Propagate
  - Screaming Circuits
- 1 or 2 person shops
  - Small Batch Assembly

Photo credit: globalspec.com

Selling

- Pitch SparkFun, Adafruit (will package/ship)
- List on a marketplace (more eyeballs)
  - Tindie
  - Amazon
  - GroupGets
- Host your own site (more control)
  - WordPress + WooCommerce (F, OS)

Marketing (aka "The Dark Side")

- "If you build it, they will come" does not work
- Outbound marketing
  - Printed/radio/TV ads, website banners, etc.
  - Generally costs $$$
- Inbound marketing
  - Blogs, videos, podcasts, social media
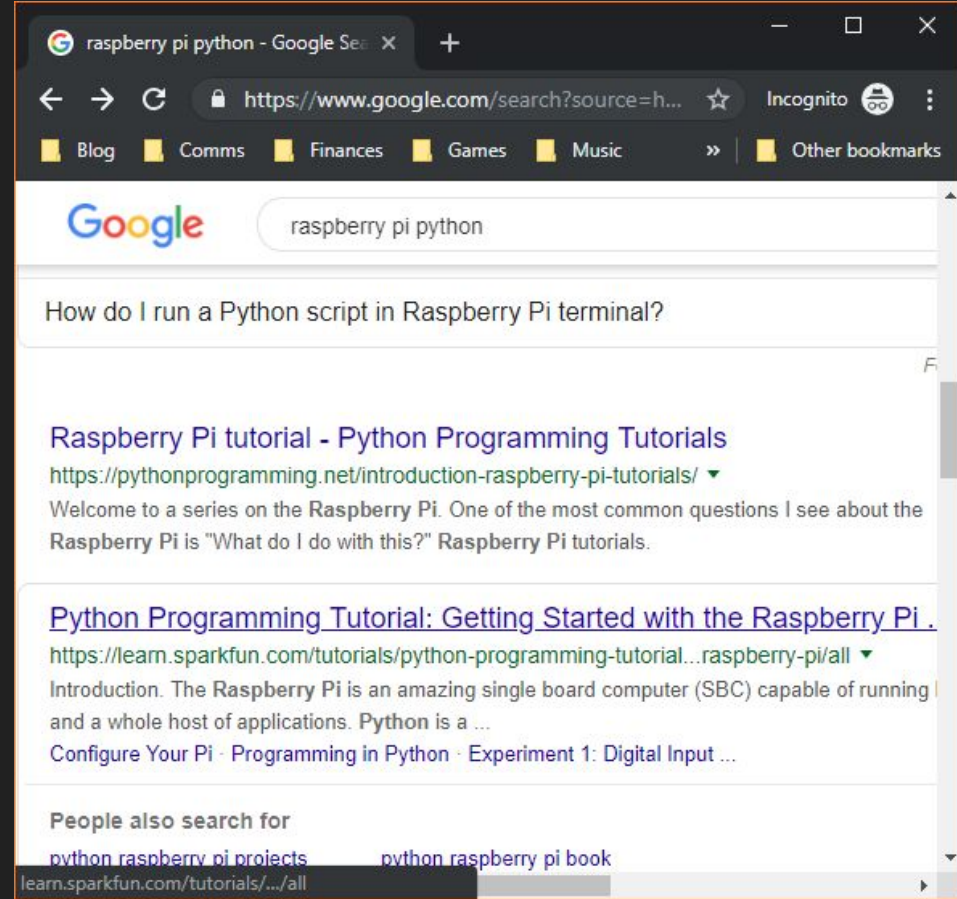 - Can be done for FREE

Basic "marketing funnel" example

Attract

Engage

Close

Delight
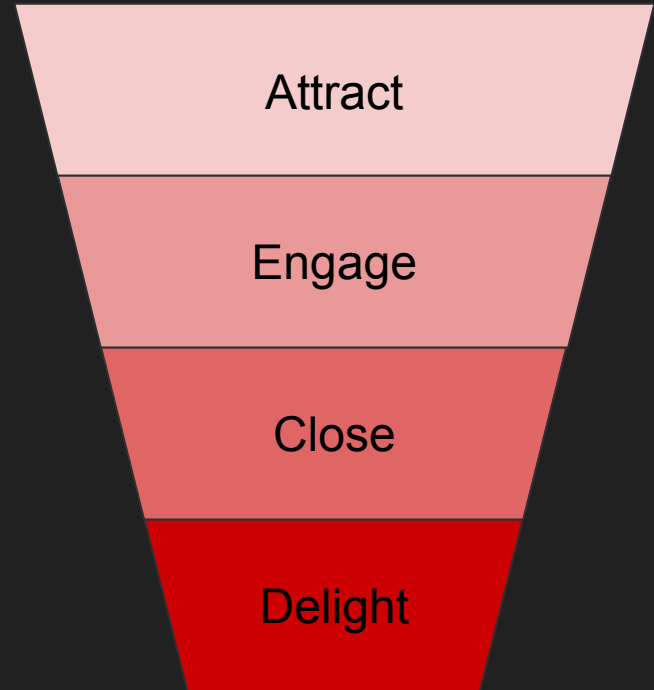
Attract

Provide free value to your audience

1. Identify your target audience
2. Find their platform(s)
3. Create content for that platform(s)

3rd Google result for "Raspberry Pi Python"

Attract

- Provide value
  - How to X
  - Current events or news
  - Inspiration (projects)
- SEO title tools
  - google.com/trends
  - neilpatel.com/ubersuggest/

Possible Platforms

- Blog
  - WordPress (F, OS)
- Social Media
  - Facebook, Twitter, Instagram, etc.
- Podcasts
  - PodBean, Buzzsprout, Anchor
- Video
  - YouTube, Vimeo

Engage

- Like
- Comment
- Ask questions
- Do live events
  - Facebook, Instagram
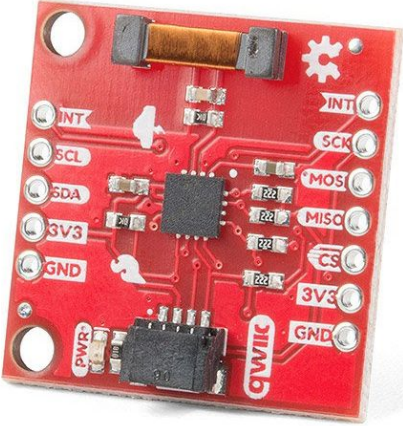- Send regular newsletter
  - Mailchimp (free for <2k subscribers)
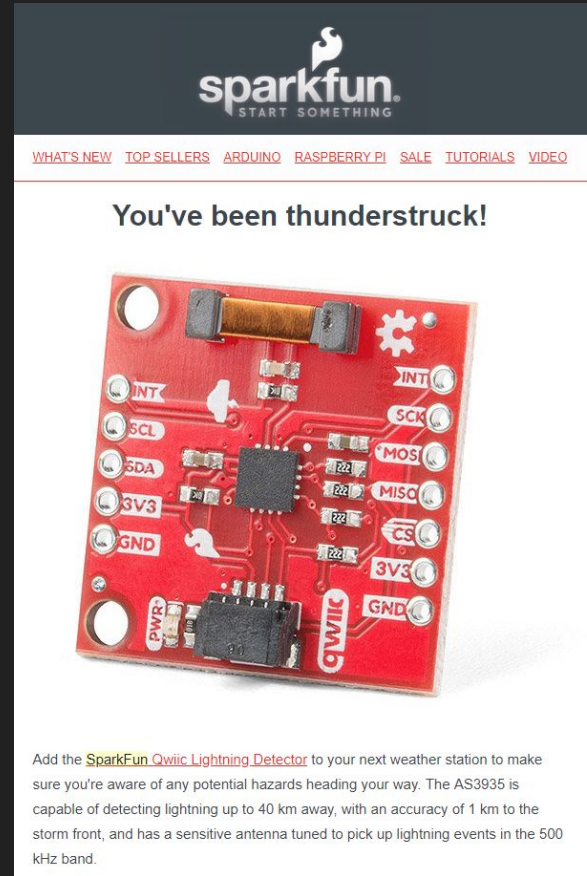
- Directly ask followers to buy or back product/service
  - Your followers should be your target audience
- Ask a few times, don't spam
  - Multiple channels/platforms
- Analysis tools (conversion rate)
  - Google Analytics

SparkFun's email newsletter is a good example of informing customers about products

Delight

- Convert customers into advocates
- Great customer support
  - GitHub (F)
  - MantisBT (F, OS)
  - Bugzilla (F, OS)
  - Social media
- Build community
  - Ask for feedback
  - Send follow-up email
  - Host forums
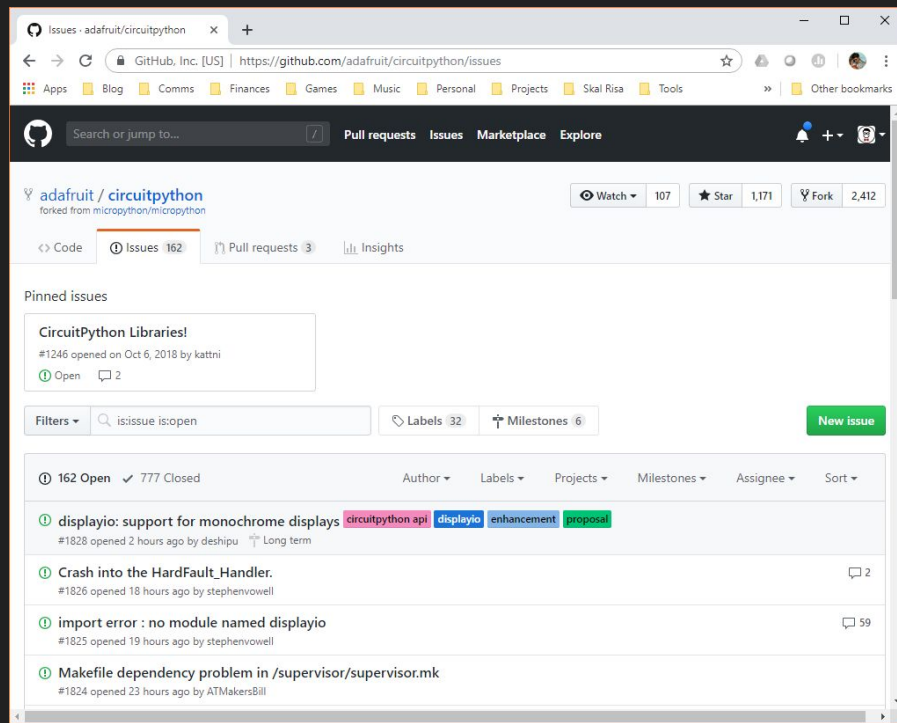
GitHub's issue tracking is solid

Lessons

- Always Be Testing
  - Design, Test, Measure, Tweak, Repeat
- Tools
  - Google Analytics (F)
  - Mailchimp (F-ish)
  - Serposcope (F, OS)
- Patience, young grasshopper
  - "It takes 10 years to build a brand"
    ~ Marketing adage
  - "It takes 20 years to make an overnight success."
    ~ Eddie Cantor
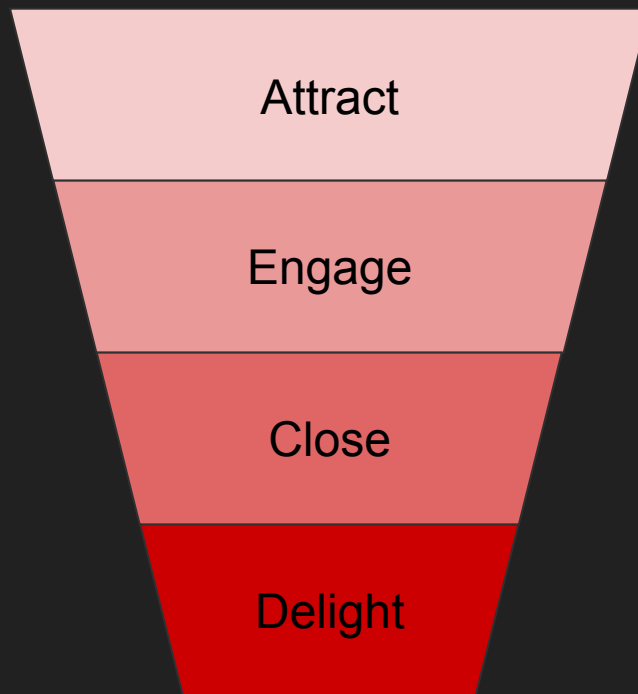
Making Media

- Product photos are crucial
  - GIMP (F, OS)
- Vector graphics (logos)
  - Inkscape (F, OS)
- Audio
  - Audacity (F, OS)
  - Get a better mic 🔊
- Screen recording (tutorials)
  - ShareX (F, OS)
- Video editing
  - Blender (F, OS)

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