TARINA BUILD INSTRUCTIONS

Build instructions for the lazy filmmakers. If your dog dies while building this I am not responsible.

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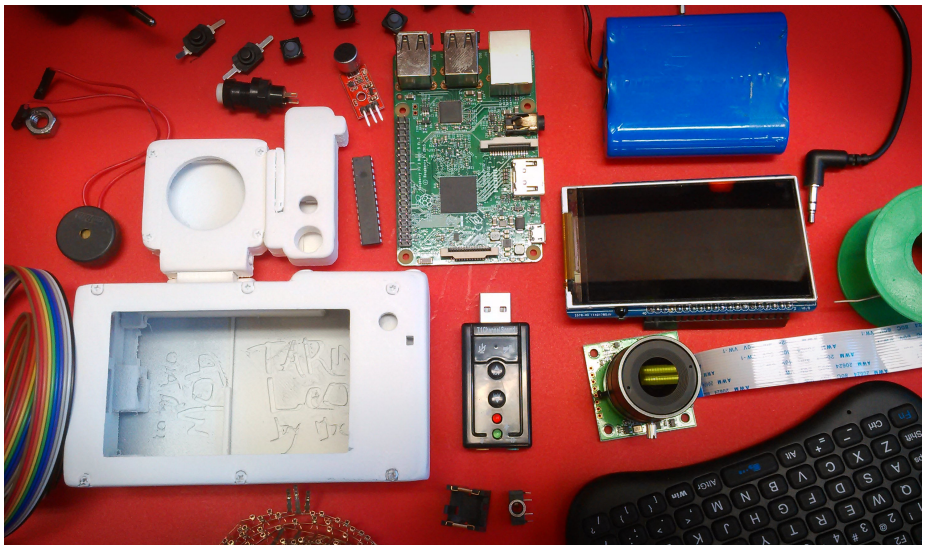

Figure 1: Tarina parts layed out

Buy the parts

Here is a list of parts that will work, there are other parts that probably will work but this is what I recommend.

Raspberry pi 3 B

Price ~30 eur

The heart of Tarina. Why Raspberry pi you ask? There are several reasons:

- Available everywhere.
- Huge support.
- The great Debian based os Raspbian (beeing a debian nerd myself).
- Low price.
- Picamera.

The 3B+ is too powerhungry for the Powerbooster 1000C thats why I went with 3B

Links Raspberry pi site **Buy** Aliexpress

Arducam 8 MP Sony IMX219 camera module with CS lens 2718

Price ~60 eur

This module and lens gives good hd video quality with the ability to manually focus and replace lenses. See tested lenses down below.

Links Arducam **Buy** uctronics

Ugeek 3.5 inch 800x480 TFT Screen

Price ~35 eur

Best 3.5 inch screen that I could find. Features worth mentioning:

- 800x480 pixels
- Very responsible 11 ms.
- High contrast.
- Sunlight readable.
- I2C Master.

This is not a touchscreen but I dont think touchscreens are good for cameras anyway.

Links Raspberrypiwiki **Buy** Aliexpress

USB via vt1620a Sound card

Price ~1 eur

Really cheap usb soundcard. It has been working suprisingly well. Have not tested other cards yet.

Buy Aliexpress

3.7v 7800mAh li-ion Battery

Price ~17 eur

I have tried several batteries, the adafruit 6800mAh is also fine.

Buy Aliexpress

Adafruit Powerboost 1000C

Price ~23 eur

This is the only power board that I could find with the feature to run the camera and charge it at the same time.

Links Adafruit **Buy** Ebay

8x8x5MM DIP-4 Silicone Switch Mute Silent button

Price ~2 eur/20 pcs

You can only buy a pack of 20 pcs but these buttons are good and silent! Not necessary if you want to control with keyboard like Rii mini 8+

Buy Ebay

MCP23017-E/SP DIP-28 16 Bit I / O Expander I2C

Price ~1 eur

This will be connected to the screen I2C port. This is not necessary if you intend to control the camera with a keyboard like the Rii mini i8+

Buy Aliexpress

Piezo Electronic Buzzer

Price ~1 eur

Very useful for timing shots!

Buy Aliexpress

1A 30V DC 250V Black Latching On Off Mini Torch Push Button Switch

Price ~1 eur/10 pcs

This serves as the microphone and screen on/off button

Buy Aliexpress

Latching push button switch 10mm fixed

Price ~5 eur/24 pcs

I use this as the powerbutton. I have tried different versions of safe shutdown buttons for the Raspberry pi but they have not worked as I wanted (they draw power even when Pi is powered off, this is not good). I have solved the problem with a menu button to safely shut down the camera.

Buy Aliexpress

Stainless Steel Hex Full Nut 1/4 inch -20 UNC 304 A2

Price ~2 eur/10 pcs

This is the standard camera stand nuts. If you never use a stand then you dont need this.

Buy Ebay

MAX9812 Microphone Amplifier

Price ~2 eur

This makes suprisingly good sounding sound!

Buy Aliexpress

3.5mm Female 5 Pins Stereo Headset Interior PCB Mount Audio

Price ~1 eur/10 pcs

Microphone input.

Buy Ebay

LR44 Batteries

Price ~2 eur/10 pcs

Microphone batteries

Buy Aliexpress

Screws M3x12

Price ~2 eur/25 pcs

These hold the camera together.

Buy Your local harware store Motonet (store in Finland)

Screws 2.2x9.5mm

Price ~1 eur/20 pcs

These hold the camera/mic together.

Buy Your local hardware store Hobbycenter (store in Finland)

LR44 Button Cell Battery Socket Holder

Price ~1 eur/pcs

We only need the metal parts from these, if you have som thin metal you could cut these yourself.

Buy Aliexpress

3.5mm Jack to Jack Aux Cable

Price ~1 eur

From microphone to mic-in.

Buy Aliexpress

Parts grand total ~185 eur

3d printing

While waiting for ordered parts lets 3d print the rest of the parts. I recommend printing with a solid 90% infill. Now it is pretty crucial that you have a good calibrated printer so that you don't over/under print. Some parts need to be very precise to work.

You'll find all the 3d parts in the 3d folder.

- body
- button-plate-bottom
- button-plate-upper
- hdmi-cap
- left-side
- mic-body
- mic-lid
- picamera-body
- picamera-body-lid
- picamera-bridge
- right-side
- screen-lid

Post processing

This is still a work in progress...

So far I've come to this conclusion:

- Sanded with multiple grit/sandpaper from rough to the finest (from 120 to 400)
- Paint first two layers
- Sand again
- Paint two layers again
- Continue til satisfied

Soldering stuff

Documentation on its way, if your in a hurry feel free to drop a message in telegram

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Putting it together

Documentation is on its way, if your in a hurry feel free to drop a message in telegram

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Installing software

Download latest Raspbian and follow install instructions. Ssh into Raspberry Pi and run:

```
sudo raspi-config
```

Expand file system, enable camera and then reboot. Run this to install git:

```
sudo apt-get install git
```

Git clone tarina and then run install script with sudo:

```
git clone https://rbckman@bitbucket.org/rbckman/tarina.git
cd tarina
sudo ./install.sh
```

You'r ready to rumble:

```
python tarina.py
```

Happy filming!

Figure 2: Should be looking like this once finnished

Tested lenses

Here is what I'm testing right now.

Yumiki 6-60mm 1/3" CS Lens CCTV Lens IR F1.6 Manual Zoom Manual Iris

Aliexpress

Camera Lens 2.8-12mm Varifocal

This lens is good. Will write a longer review once I have more filming hours.

Aliexpress

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that's all folks...