TARINA BUILD INSTRUCTIONS

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

Buy the parts

3d printing

Post processing

Soldering stuff

Putting it together

Installing software

Tested lenses



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 of Raspbian (beeing a debian nerd myself).
- Low price.
- Picamera.

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

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 $\sim 2 \text{ eur}/20 \text{ pcs}$

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 $\sim 1 \text{ eur}/10 \text{ pcs}$
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 Her Full Net 1/4 inch 20 UNC 204 A2
Stainless Steel Hex Full Nut 1/4 inch -20 UNC 304 A2
Price $\sim 2 \text{ eur}/10 \text{ pcs}$
This is the standard camera stand nuts. If you never use a stand then you don't need this.
Buy Ebay

${ m MAX9812}$ 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 $\sim 2 \text{ eur}/10 \text{ pcs}$				
Microphone batteries				
Buy Aliexpress				
Screws M3x12				
Price \sim 2 eur/25 pcs				
These hold the camera together.				
Buy Your local harware store Motonet (store in Finland)				
Screws 2.2x9.5mm				
Price $\sim 1 \text{ eur}/20 \text{ pcs}$				
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
- \bullet left-side
- mic-body
- \bullet 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

Putting it together

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

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

that's all folks		