

Waldo & Rigby

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General Setup (using pi and waldo per SSH)

Set fixed IP for raspberry pi

1. Edit `/etc/dhcpd.conf`, enable static ip config:

```
interface eth0
static ip_address=192.168.0.4/24
static routers=192.168.0.1
static domain_name_servers=192.168.0.1
```

2. reboot

Set fixed IP for Laptop

```
# ifconfig enp0s25 192.168.0.5 netmask 255.255.255.0 up
```

Mount remote file system

```
$ mkdir remote_waldo

$ sshfs pi@192.168.0.4:/home/pi/tmp_waldo_projects remote_waldo/
```

Raspberry Pi credentials

pi / 1234

Waldo commands

set_servo (recalibrate a servo)

This functionality is used to store the settings of a certain servo (e.g., of a box) for a certain channel within a certain project.

Requirements:

1. Potentiometer is connected to the top-row of connectors (labelled 0-23), on Pin 8.
2. Servo to calibrate is connected to bottom-row, to one of the pins.

Steps

(Servo on Pin 2, Potentiometer on Pin 8)

```
$ python main.py -ss /path/to/project channelName  
  
Set MCP3008 Pin [default 8] # this is the potentiometer, you can just hit enter  
  
Set Servo Pin [default 0] # this is the servo pin, here use 2  
  
Set minimum position: # hit 'm' to set the value with the potentiometer  
  
Set maximum position: # hit 'm' to set the value with the potentiometer  
  
Set start position: # usually use the minimum position to start closed
```

play (play an entire project)

```
$ python main.py -p /path/to/project [start_offset_in_seconds]
```

Create a new project

1. Copy the folder from an existing project
2. Remove all channel files
3. Replace audio file in path/to/project/audio
4. Delete channels that are not needed anymore from the config file
5. Call set_servo for all channels if the servos are not calibrated
6. Record channels

```
$ python main.py -r /path/to/project channelName
```

Editor

```
$ python editor.py /path/to/project
```

remover / adder

Switch between “remover” and “adder” mode.

- Adder (default after start of editor): clicking adds a point
- Remover: clicking removes the closest point

Convenience functions

- Erase all: remove all added points from the editor.
- First/last to y = zero: changes the first and last point added by clicking to $y = 0$.
- add start/end: add a value at $t = 0$, and $t = \text{end_of_recording}$ with $y = 0$ for both values.
- Save (needs to have channelName set in input field): write the new line to this channelName
- set same height (needs to have channelName set in input field): set last / first added point y value such, that they match the previously existing y value at that time.
- Merge (needs to have channelName set in input field): Merge the currently drawn line with the existing line (useful, if only a certain part of the curve needs to be changed).

Rigby (remote keyboard)

Setup

1. Connect rigby with RJ-45 cable to special port on pi (“pin 0-5”)
2. Boot pi

(Re-)calibrate

Needs to be done when the cable connecting rigby and the pi has changed.

1. Kill running waldo.py process
2. Calibrate:

```
$ python waldo.py -cal
```

Configure buttons

Button commands are stored in config file, the following config for example defines the first 10 buttons (note the PROJECT_PATH on top):

Hint: cancel must be button 30, due to special logic in the code,

```
PROJECT_PATH: ~/waldo_projects
```

```
REC_REPL: false
```

```
button_value:
```

```
0: 89
```

```
1: 932
```

```
2: 778
```

```
3: 670
```

```
4: 594
```

```
5: 306
```

```
buttons:
```

```
1: -p s1_tonleiter_einzaehlen
```

```
2: -p s23_teaser_variante_tonleiter
```

```
3: -p s12_refrain_piano
```

```
4: -p s4_variante_solostimmen
```

```
5: -p s9_variante_lalala
```

```
6: -p reset
```

```
7: -p reset
```

```
8: -p reset
```

```
9: -p reset
```

```
10: -p reset
```

```
mcp:
```

```
0:
```

```
CLK: 4
```

```
CS: 27
```

```
MISO: 17
```

```
MOSI: 18
```

```
1:
```

```
CLK: 22
```

```
CS: 25
```

```
MISO: 23
```

```
MOSI: 24
```

```
2:
```

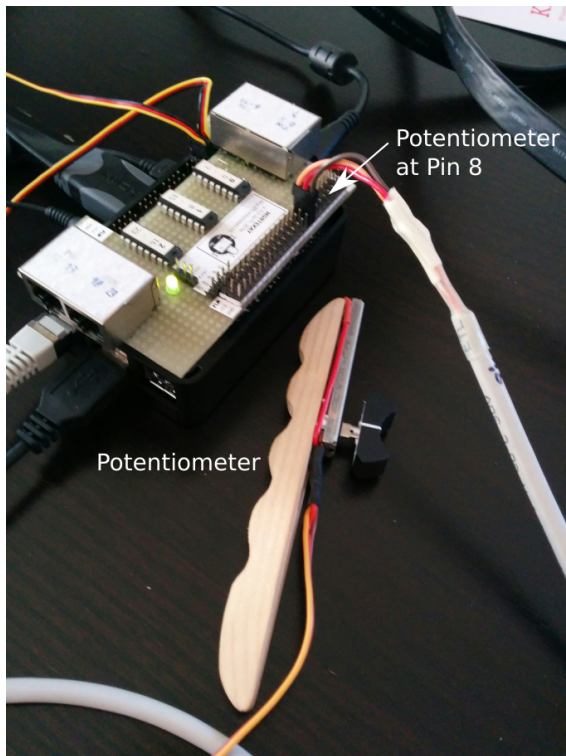
```
CLK: 5
```

```
CS: 13
```

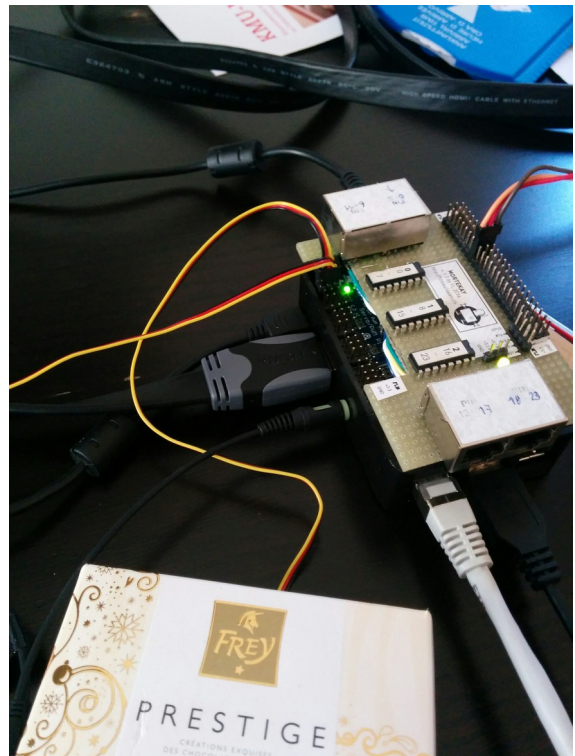
```
MISO: 6
```

```
MOSI: 12
```

Photos



Connecting the Potentiometer on Pin 8



Connecting servos on (pin 0 and 1)



Rigby (Ethernet on Pin 0-5)