
Pedge: Pit Electronics Badge

*Real-life Social Data Gathering Tool as an Alternative to
Sociometric Badge*

*Final Project of Creative Technology for Academic Year 2016-2017
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Supervised by.

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Who am I? Who am I?

Mikael Pratama

Creative/Smart Technology
Mathematics Philosophy Decent
Programmer Linux Project

I can make electronics as well!

Things I like:

- Programming
- Reading
- My Nintendo 3DS

Things I hate:

- **CSS and JavaScript**

Contacts me at:

- **Twitter:**
@notalentgeek
- **GitHub:**
/notalentgeek

It's my highschool hacker name please don't comment :D

Do first think later...

Setup the whole Pedge web environment (database server and web server)

- `adduser pedge`
- `usermod -aG sudo pedge`
- `su - pedge`
- `cd ~ && git clone https://github.com/notalentgeek/pedge --depth 1`
- `cd ~/pedge/script/ubuntu_1604_server/`
- `chmod +x ./setup.sh`
- `sudo ./setup.sh`

Setup Pedge Raspberry PI client

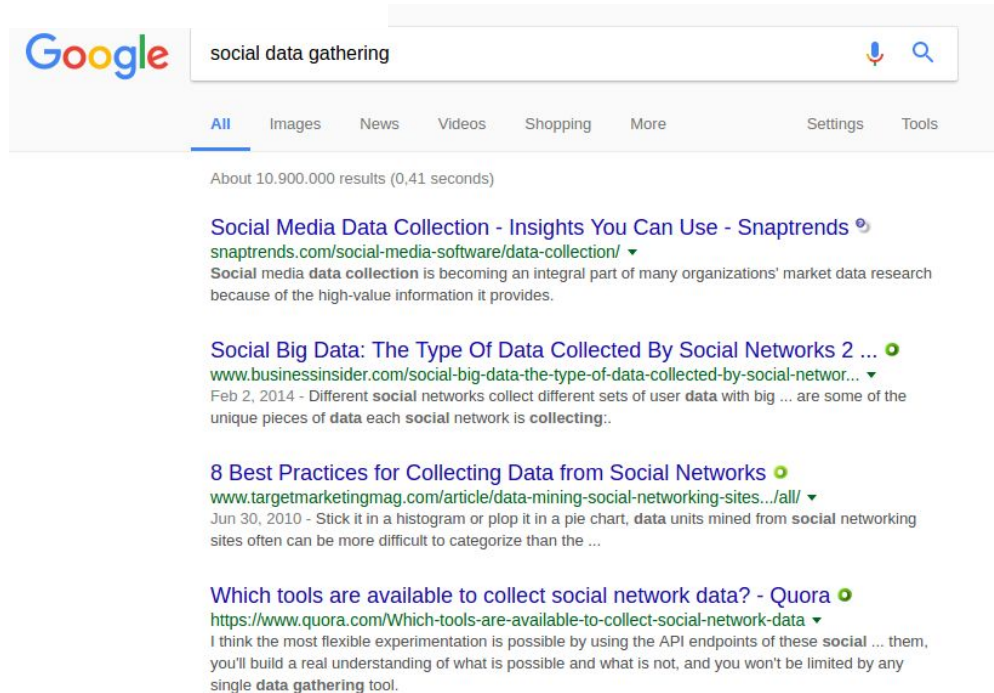
- `cd /home/pi`
 - `git clone https://github.com/notalentgeek/pedge --depth 1`
 - `cd /home/pi/pedge/script/raspbian_jessie/`
 - `chmod +x ./setup.sh`
 - `sudo ./setup.sh`
-



About this project...

- **What:** Creating a real-life social data gathering device
- **Who:** Sociometric Badge and Rhythm Open Badge
- **Who:** Social Scientists and Makers
- **Why:** Closed, hard to buy, and custom hardware
- **How:** Leveraging popular development tools!

Google is a troll :(







The image shows a screenshot of a Google search page. The search bar contains the text "social data gathering". Below the search bar, there are navigation tabs for "All", "Images", "News", "Videos", "Shopping", and "More". The "All" tab is selected. Below the tabs, it says "About 10,900,000 results (0,41 seconds)". There are four search results listed, each with a title, a URL, and a brief description.



Google social data gathering



All Images News Videos Shopping More Settings Tools

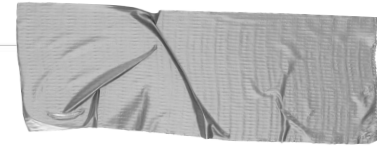
About 10,900,000 results (0,41 seconds)

Social Media Data Collection - Insights You Can Use - Snaptrrends 
snaptrrends.com/social-media-software/data-collection/ 
Social media data collection is becoming an integral part of many organizations' market data research because of the high-value information it provides.

Social Big Data: The Type Of Data Collected By Social Networks 2 ... 
www.businessinsider.com/social-big-data-the-type-of-data-collected-by-social-networ... 
Feb 2, 2014 - Different social networks collect different sets of user data with big ... are some of the unique pieces of data each social network is collecting:.

8 Best Practices for Collecting Data from Social Networks 
www.targetmarketingmag.com/article/data-mining-social-networking-sites.../all/ 
Jun 30, 2010 - Stick it in a histogram or plo it in a pie chart, data units mined from social networking sites often can be more difficult to categorize than the ...

Which tools are available to collect social network data? - Quora 
<https://www.quora.com/Which-tools-are-available-to-collect-social-network-data> 
I think the most flexible experimentation is possible by using the API endpoints of these social ... them, you'll build a real understanding of what is possible and what is not, and you won't be limited by any single data gathering tool.



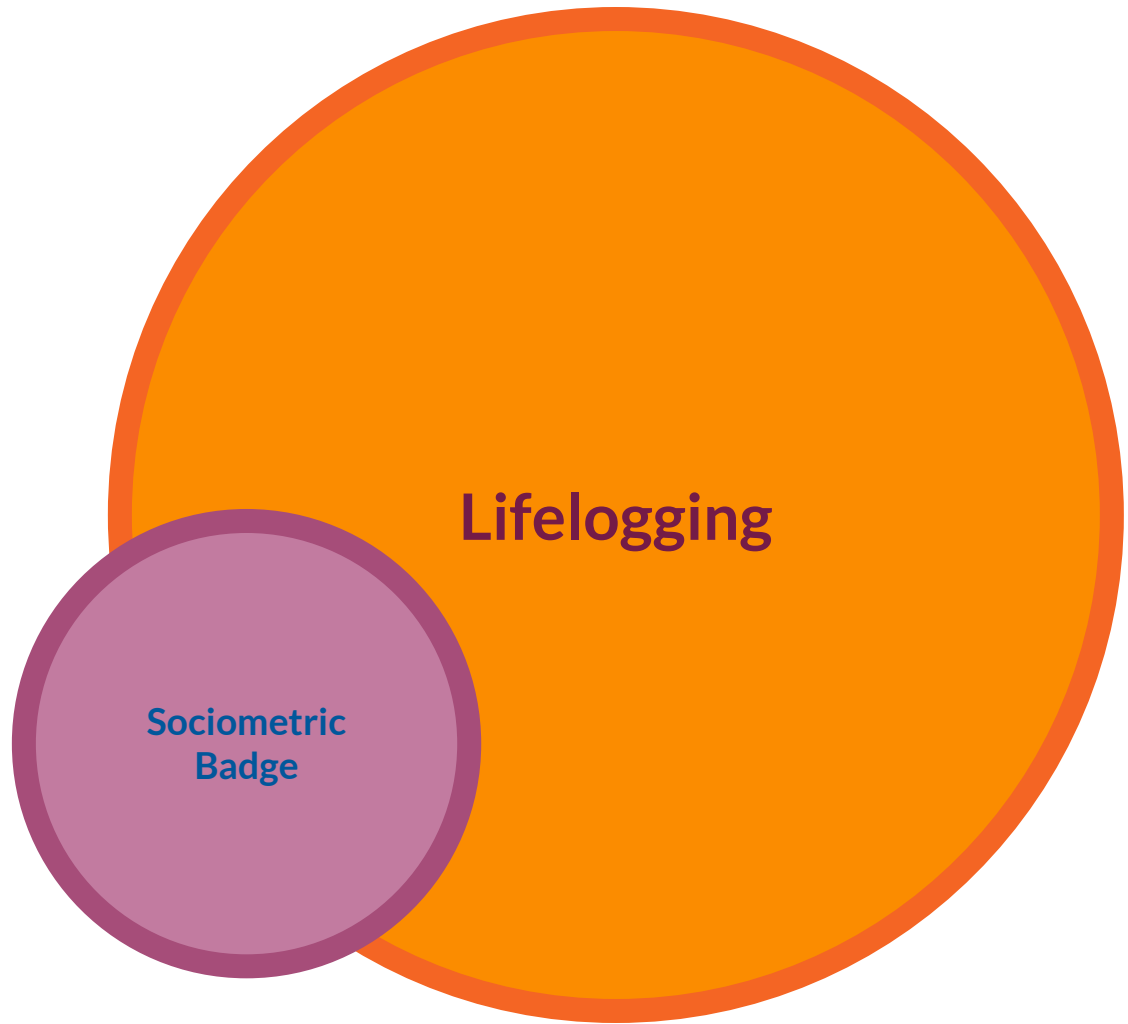
Problem: The term is misleading

Solutions:

- “Social observation”
- “Real-life social data gathering”

Project Scope

- General lifelogging
 - Human blackbox
- Sociometric Badge:
Corporate-grouped
community logging
- Emerging in research
- No successful consumer
product just yet :(





History of Sociometric Badge:

1992 Active Badge

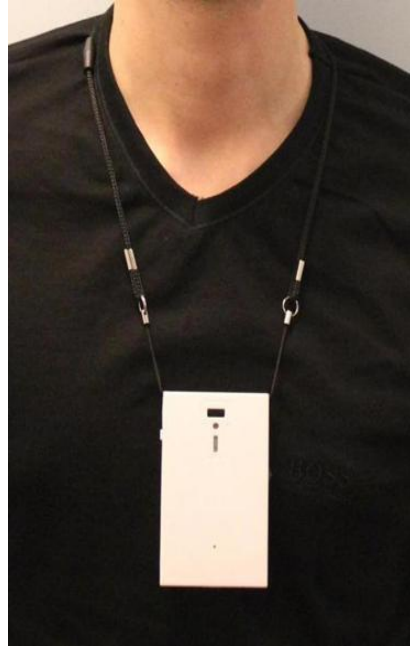
1998 Meme/Thinking Tag

2003 Sociometer and UbER Badge

2008 Sociometric Badge

2016 Rhythm Open Badge

What is it?



- Emerging device in real-life big data
- Takes social signals
- Some machine learning magic

How does it feels to be judged
by a machine?

- *Adjust workspace position*
 - *Knowledge flows*
-

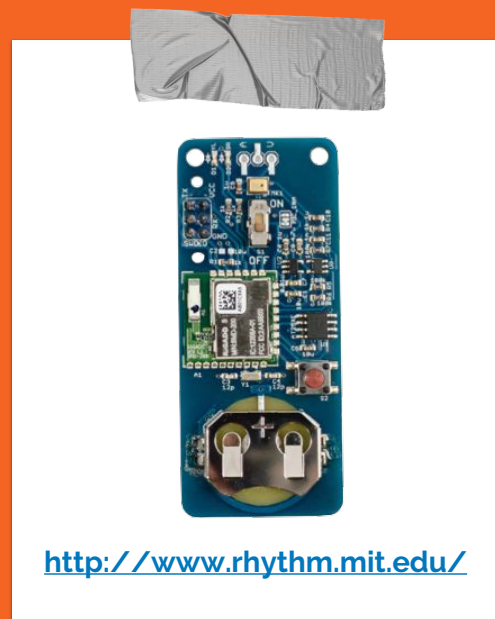
—

Problem with Sociometric Badge

- @ Buy on request
- \$ Expensive
- *Manual data extraction*
- Not transparent

Then... Rhythm Open Badge

- Pross :D
 - Open source!
 - Extremely low powered (one coin battery)
- Neutral :|
 - Still in development (21 January 2016)
- Cons :(((
 - Custom hardware...
 - Unpopular electronics board!



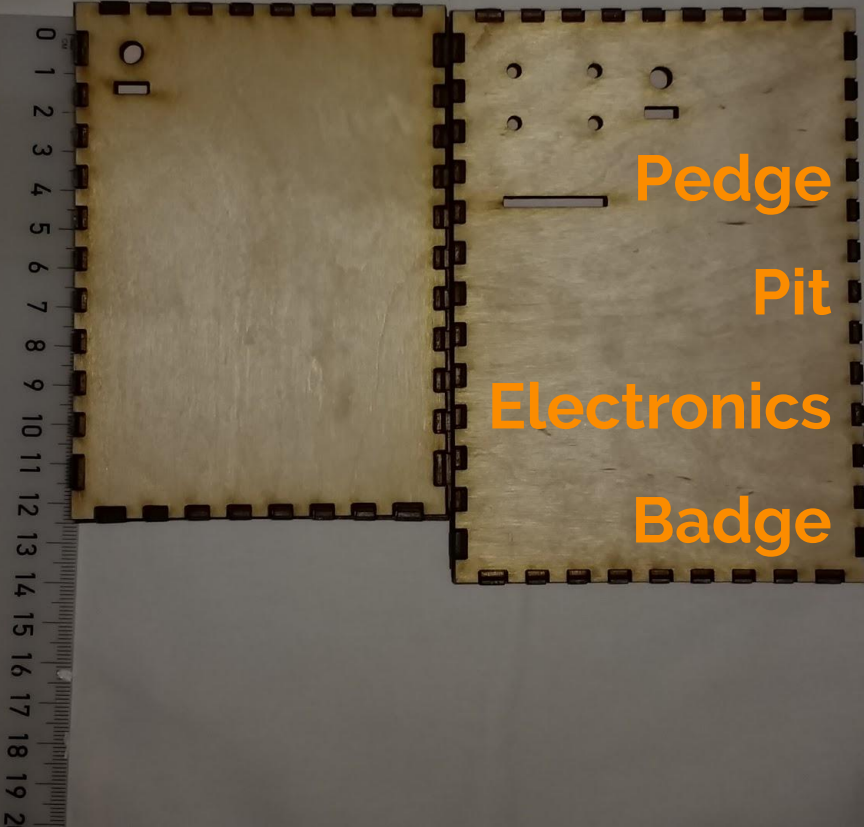
Project's Principles

Less electronics
More programming

Easy to install/setup
Easy to use

Use popular
development
platform

- Hardware
- Software

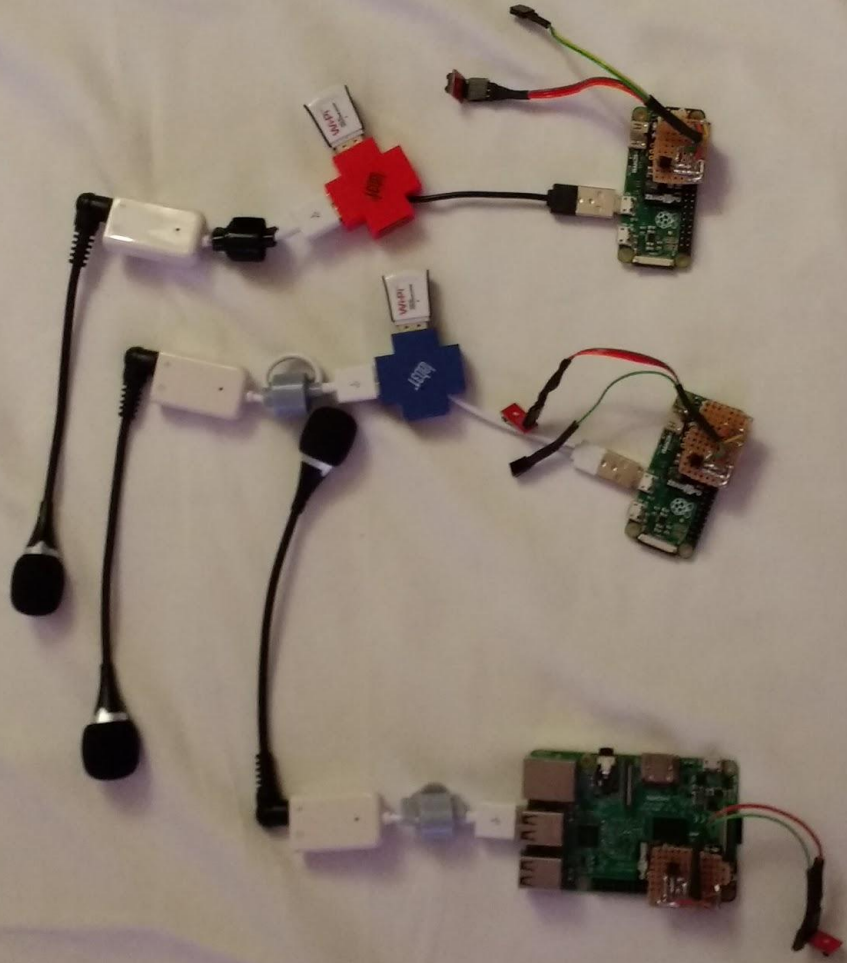


Pedge

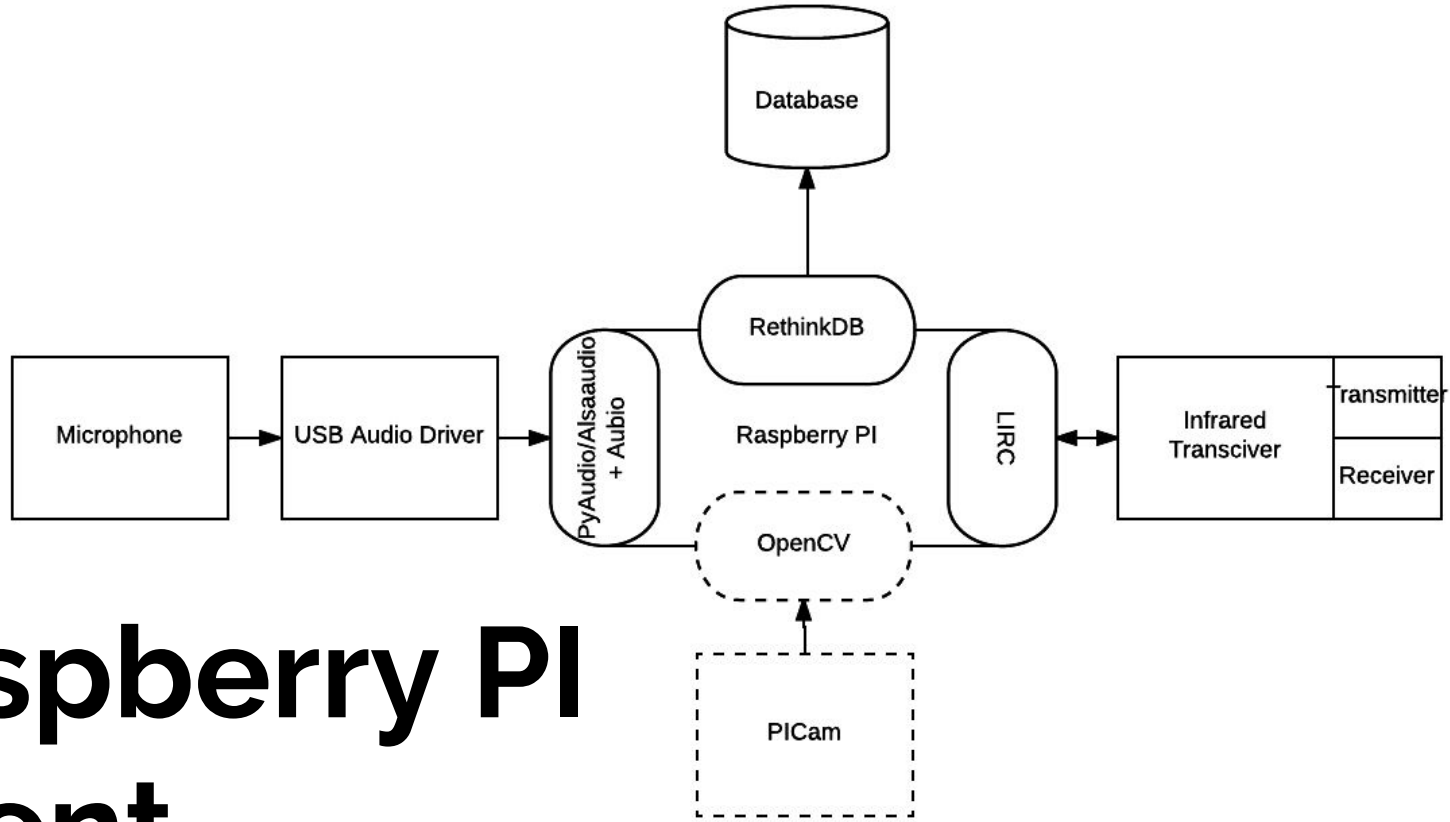
Pit

Electronics

Badge



Raspberry Pi Client



Raspberry Pi Client

Terminal

File Edit View Search Terminal Help

```

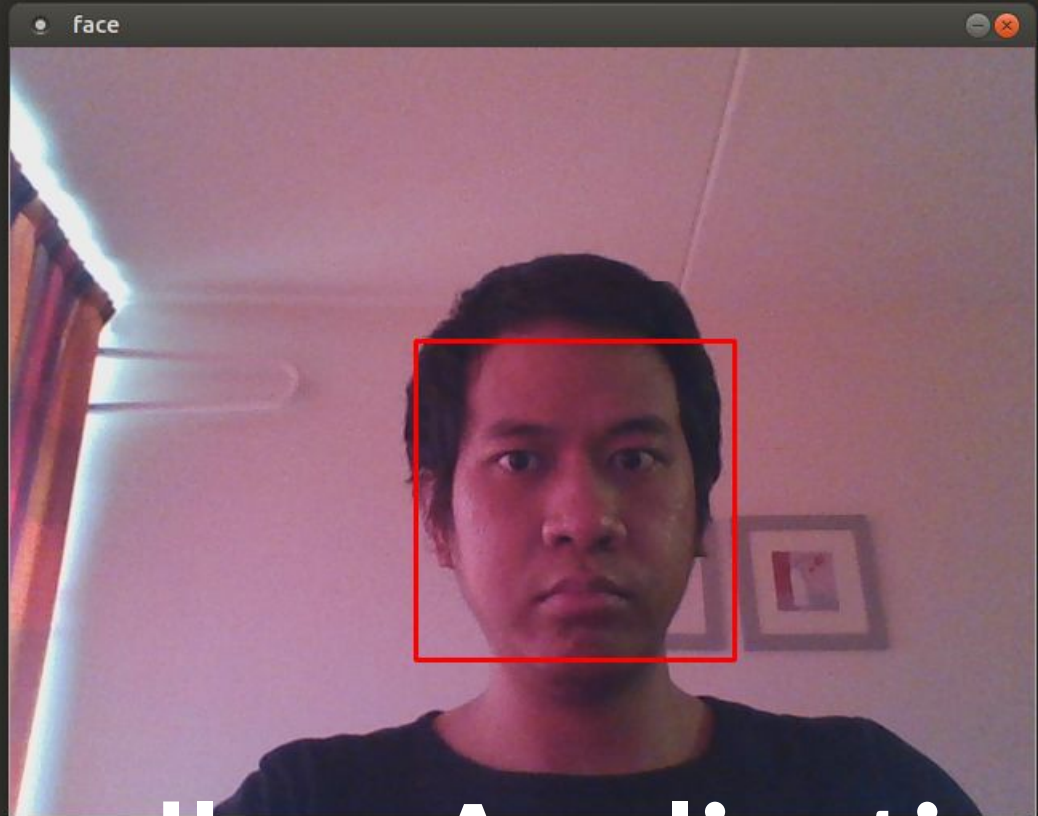
name_client      : asd
name_db          : server_pedge
port_db          : 28015
no_db            : False
no_face          : False
no_pitch         : False
no_presence      : True
no_volume        : False
no_print_log     : False
use_gui_opencv   : True
use_rpi          : False
use_rpi_cam      : F=====

```

```

=====rlin-face-1
asd-20170519130307-europe/berlin-pitch-0.0
asd-20170519130308-europe/berlin-volume-0.000006
asd-20170519130308-europe/berlin-face-1
asd-20170519130309-europe/berlin-pitch-0.0
asd-20170519130309-europe/berlin-volume-0.000007
asd-20170519130309-europe/berlin-face-1
asd-20170519130310-europe/berlin-pitch-0.0
asd-20170519130310-europe/berlin-volume-0.000006
asd-20170519130310-europe/berlin-face-1
asd-20170519130311-europe/berlin-pitch-0.0
asd-20170519130311-europe/berlin-volume-0.000044
asd-20170519130311-europe/berlin-face-1
asd-20170519130312-europe/berlin-pitch-0.0
asd-20170519130312-europe/berlin-volume-0.000004
asd-20170519130312-europe/berlin-face-1
asd-20170519130313-europe/berlin-pitch-0.0
asd-20170519130313-europe/berlin-volume-0.000002
asd-20170519130313-europe/berlin-face-1
asd-20170519130314-europe/berlin-pitch-0.0
asd-20170519130314-europe/berlin-volume-0.000029
asd-20170519130314-europe/berlin-face-1
asd-20170519130315-europe/berlin-pitch-0.0

```



Headless Application

```
please input      : client name
requirement      : alpha-numeric, camelCase, case sensitive, no space
example          : richardDawkins
default          : do not fill and just press enter to fill the default value of "testClient"
client name      : mikael
```

```
please input      : database IP address
requirement      : alpha-numeric, not case sensitive, no space
example          : 127.0.0.1 or http://127.0.0.1
default          : do not fill and just press enter to fill the default value of "127.0.0.1"
database address : 
```

```
please input      : database name
requirement      : alpha-numeric, lower case, underscore_case, no space
example          : my_database
default          : do not fill and just press enter to fill the default value of "server_pedge"
database name    : 
```

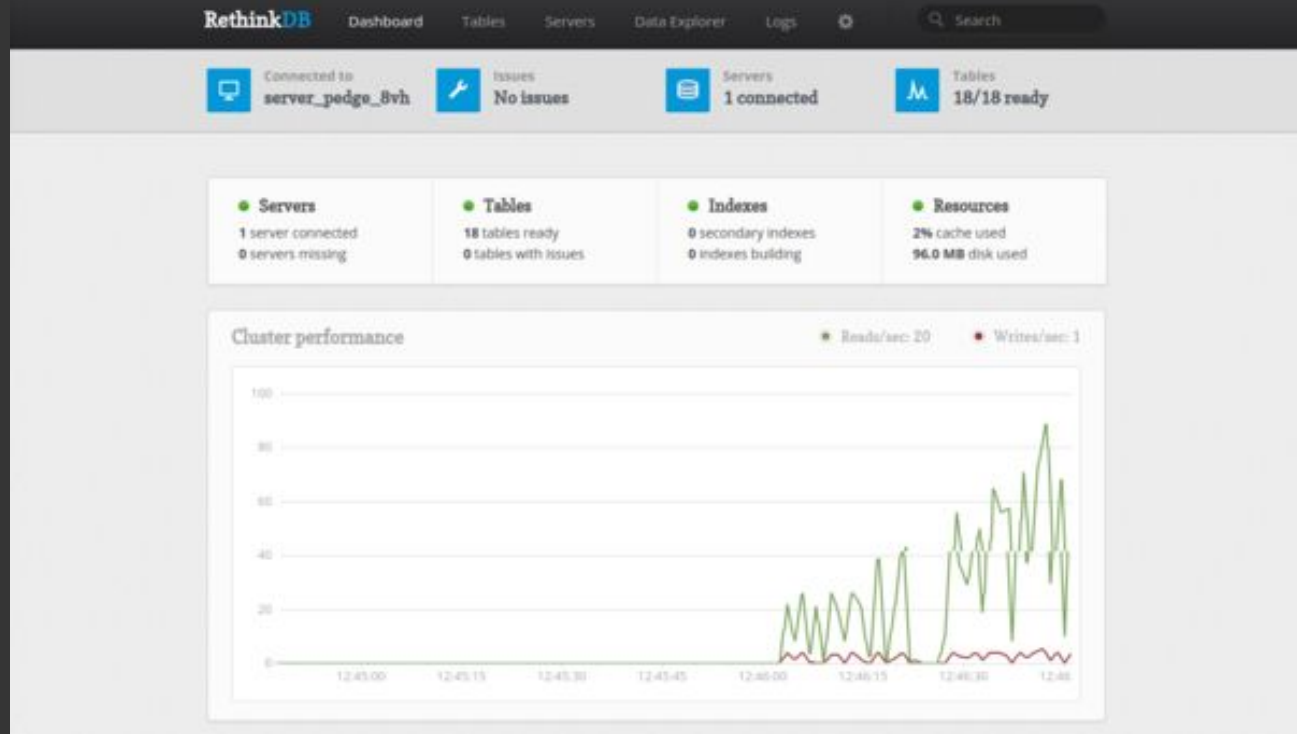
```
please input      : database port
requirement      : numeric, no space
example          : 28015
default          : do not fill and just press enter to fill the default value of "28015"
database port    : 
```

```
please input      : lirc registered ir code
requirement      : alpha-numeric, underscore_case, upper_case, no space
example          : KEY_1
default          : do not fill and just press enter to fill the default value of "KEY_1"
key ir           : 
```

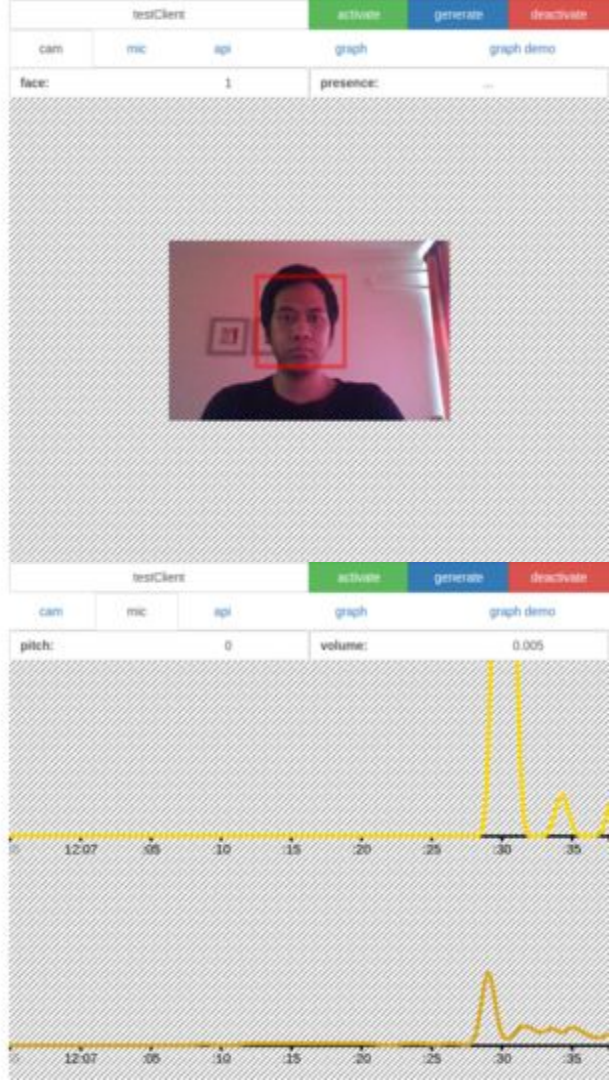
EASY SETUP WITH CLI WIZARD

sudo python3 -B pedge.py start-wizard

RethinkDB Database Server



http://<ip_address>:8080



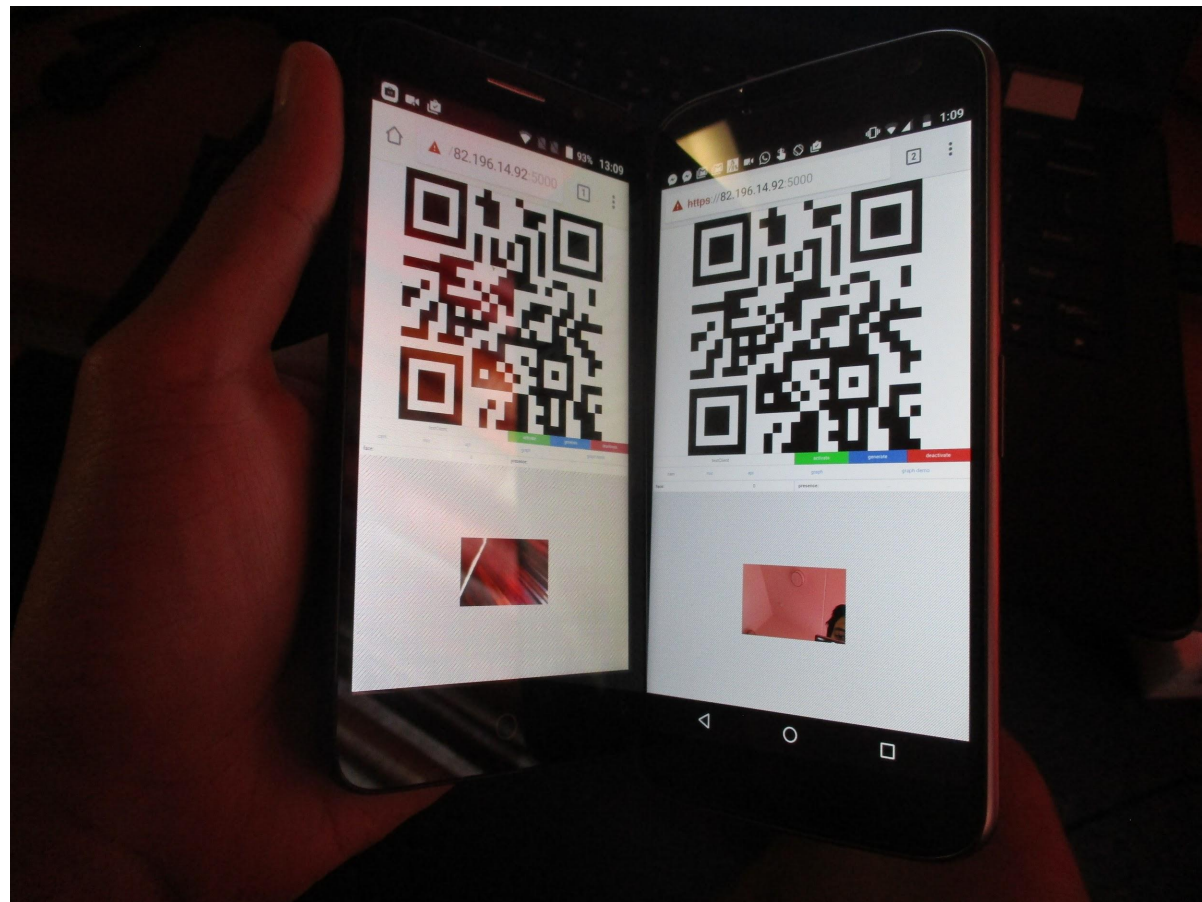
Web Application Client:

- Face detection
- Presence detection via QR detection
- Pitch and volume detection

https://<ip_address>:5000

QR code presence detection

- Intended for face-to-face detection
- Going back to Meme Tag
- Not so accurate (sadly)
- There is no need for multiple QR codes detection just yet

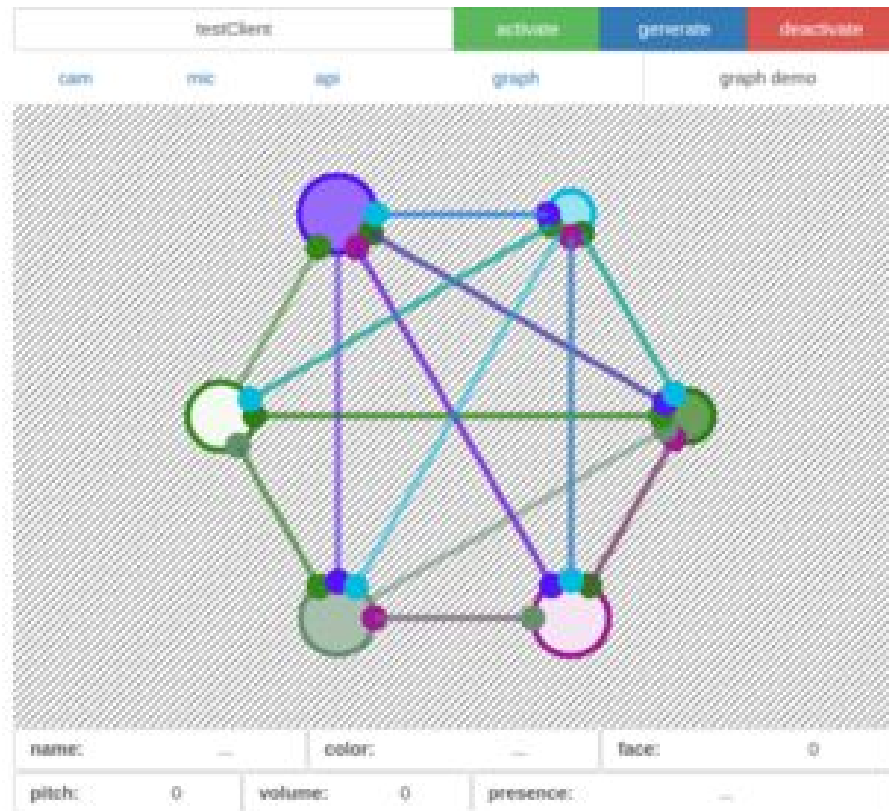


The screenshot displays a web-based database interface. At the top, there are several navigation buttons: 'testClient' (white), 'activate' (green), 'generate' (blue), and 'deactivate' (red). Below these are tabs for 'cam', 'mic', 'api', 'graph', and 'graph demo'. A secondary row of tabs includes 'client', 'face', 'pitch', 'presence', and 'vol'. Two large buttons are present: 'download.csv' (dark blue) and 'download.json' (light blue). The main content is a table with the following data:

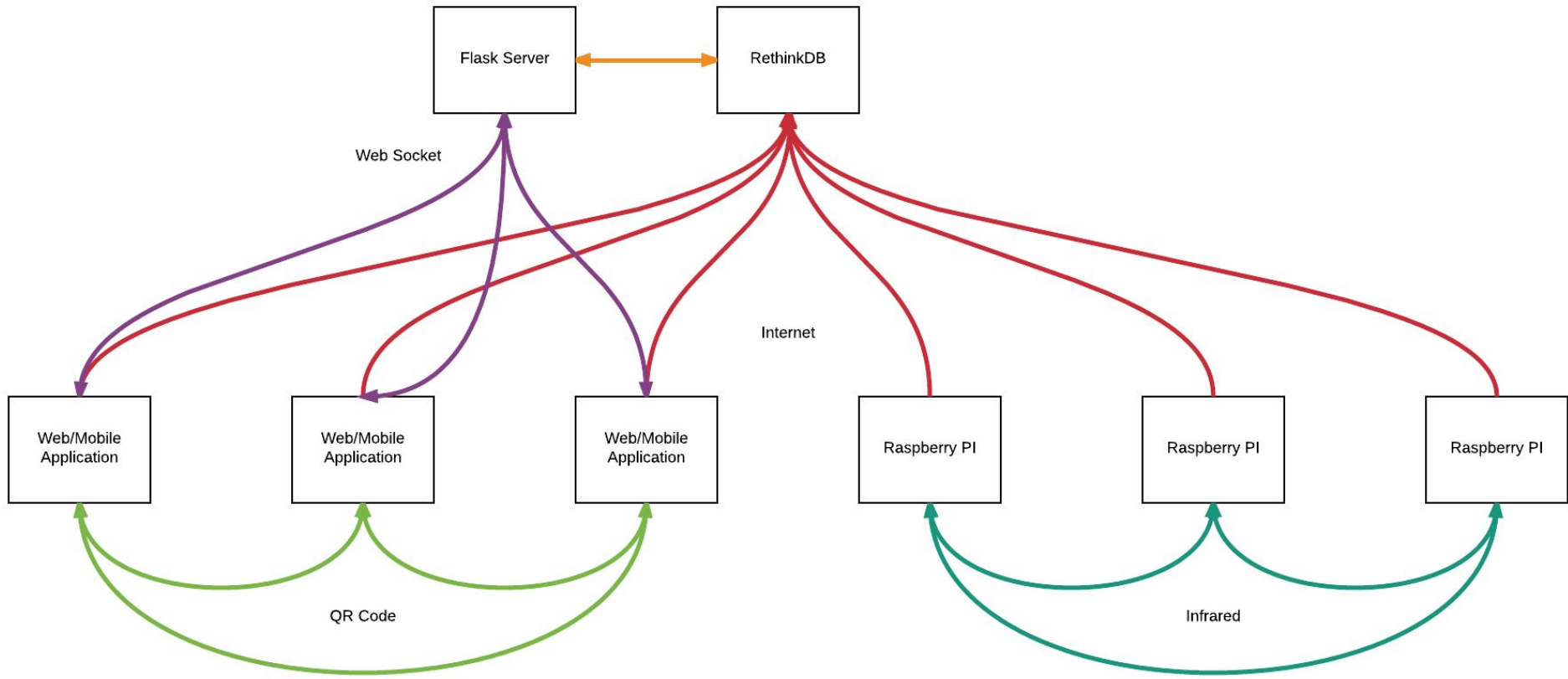
Name	IR Key Code	Latest Data Input
asd	KEY_1	KEY_1
asd	KEY_1	KEY_1
mark	None	20170415204411
mikael	None	20170415204528
tesla	KEY_1	KEY_1

Showing 1 to 5 of 5 entries

Database interface + download database table as .csv!



Moreno's Sociogram-like



Automatic Installations

Setup the whole Pedge web environment (database server and web server)

- `adduser pedge`
- `usermod -aG sudo pedge`
- `su - pedge`
- `cd ~ && git clone https://github.com/notalentgeek/pedge --depth 1`
- `cd ~/pedge/script/ubuntu_1604_server/`
- `chmod +x ./setup.sh`
- `sudo ./setup.sh`

Setup Pedge Raspberry PI client

- `cd /home/pi`
 - `git clone https://github.com/notalentgeek/pedge --depth 1`
 - `cd /home/pi/pedge/script/raspbian_jessie/`
 - `chmod +x ./setup.sh`
 - `sudo ./setup.sh`
-



Manual Installations

- **Why manual installation?**
Self-troubleshooting
- **Two manual installation instructions**
 - **Command-level**
 - **Software-level**
- **Command level instruction example**

```
sudo /bin/sh -c 'printf "\npcm.!default\n  
type hw card 1\n\nctl.!default\n type hw  
card 1\n]" > /home/pi/.asoundrc'
```




Manual Installations

- **Software level instruction**
 - In terminal run *sudo nano /home/pi/.asoundrc*.
 - **Add these lines.**

```
pcm.!default{  
    type hw card 1  
}  
  
Ctl.!default{  
    type hw card 1  
}
```

—

Conclusions:

- Social device needs **context flagging agent!** Numbers alone does not matter!
- Leverage **multi-modal sensors**...
Detection in software level!
- The most convenient installation method is **automatic installation**
- Software-level instruction is the best way to teach self-troubleshooting
- Command-level instruction is prone to copy-paste error