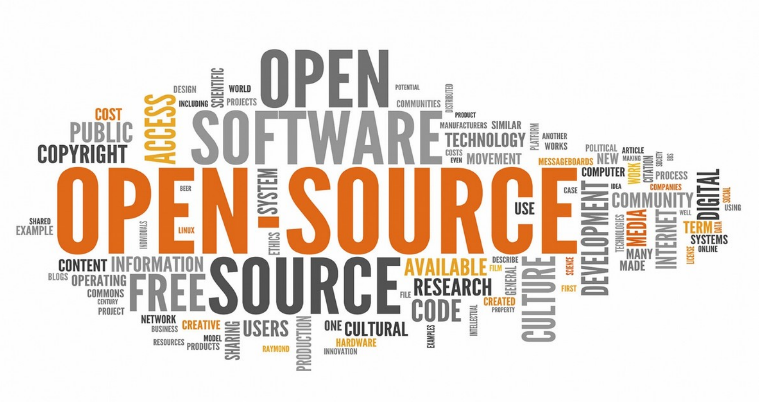
Openhack X – Peace Parks

Creating a Raspberry Pi solution

RaspberryPi

PEACE PARKS
FOUNDATION



2019-03-21

Fabian Kunkel

Background

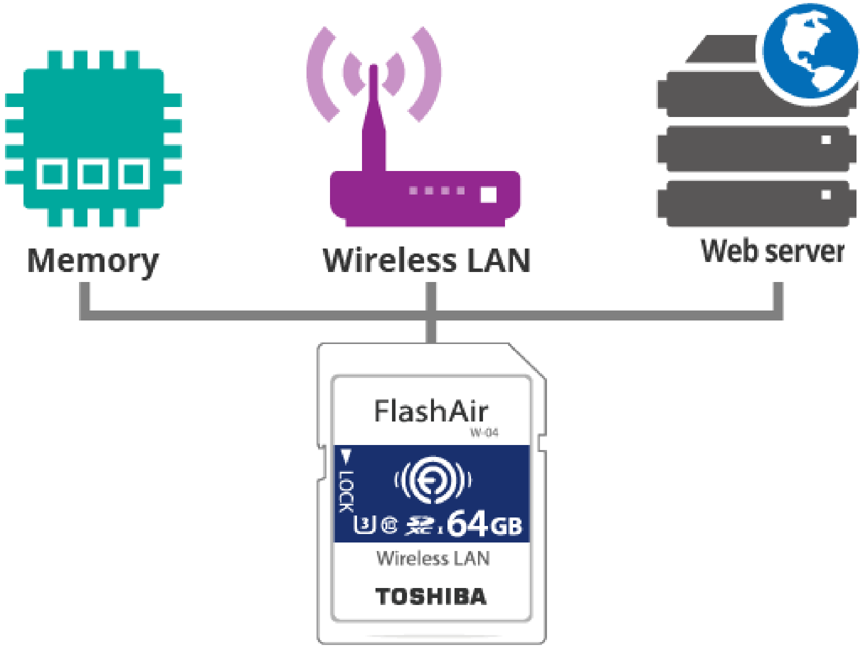
- **Openhack Event 2018-12-02**
  - Peace Parks
  - Safe the Rhinos
  - Ideas to prevent poaching
  - Our Solution: Raspberry Pi Sensor Mesh Network
  - Github Repository:
    - https://github.com/F48i/2018-Stockholm-Save-the-Rhinos

Problem

- Legacy Cameras no way of uploading the pictures
- Lot of manual labor
- Image analysis happens to late

Idea for Today

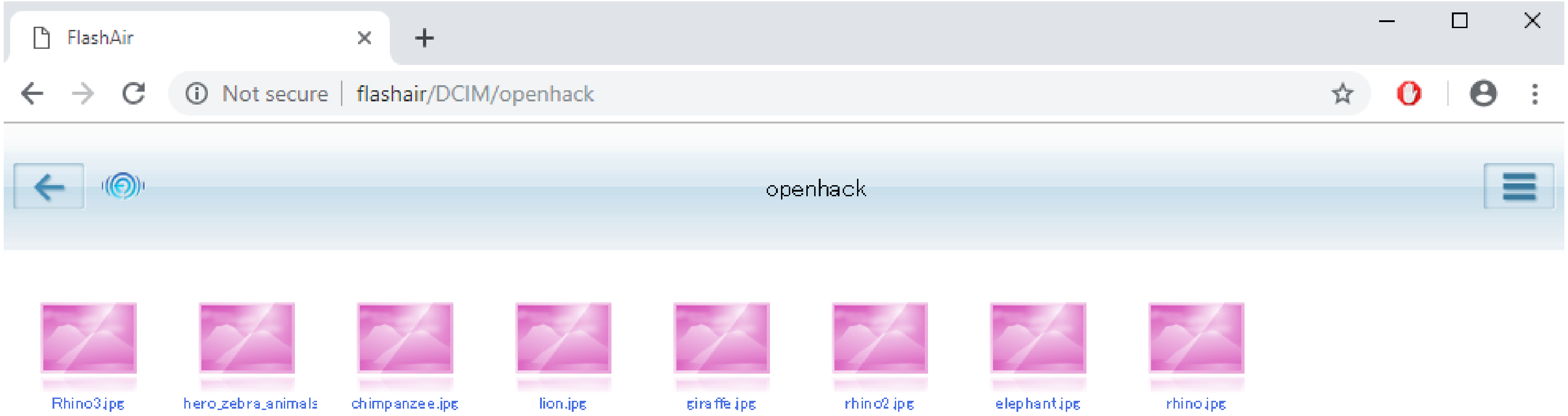
- Replace SD-Card with FlashAir Wifi SD-Card
- Connect Raspberry Pi
- Download Images
- Analyse Images
- (Alarm Park Rangers)



Task 1

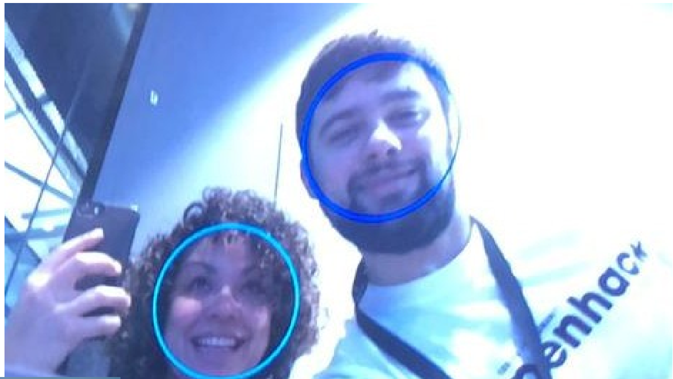
- **Establish Connection**
  - SSID: flashair_xxxx
  - Password: 12345678
  - http://flashair/DCIM/

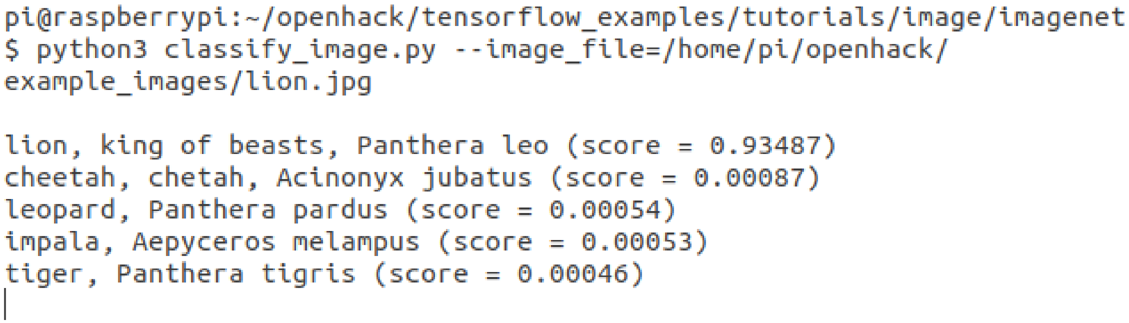
- **Git Repo:**
  - https://github.com/C-X1/PyFlashAero



Task 2

- **Analysis Images for relevant content**
- **OpenCV 4 preinstalled**
- **Tensorflow 1.13.1 preinstalled**





```
pi@raspberrypi:~/openhack/tensorflow_examples/tutorials/image/imagenet
$ python3 classify_image.py --image_file=/home/pi/openhack/
example_images/lion.jpg

lion, king of beasts, Panthera leo (score = 0.93487)
cheetah, chetah, Acinonyx jubatus (score = 0.00087)
leopard, Panthera pardus (score = 0.00054)
impala, Aepyceros melampus (score = 0.00053)
tiger, Panthera tigris (score = 0.00046)
```

Preparation

- **Default raspbian installation**
  - https://www.raspberrypi.org/downloads/raspbian/
- **Follow Installation Instructions:**
  - Install opencv
    - https://www.pyimagesearch.com/2018/09/26/install-opencv-4-on-your-raspberry-pi/
  - Install tensorflow
    - https://www.makeuseof.com/tag/image-recognition-tensorflow-raspberry-pi/

Summery

- **FlashAir**
  - SSID: flashair_xxxx
  - Password: 12345678
  - http://flashair/DCIM/

- **Raspberry Pi**
  - Username: pi
  - Password: openhack
- **Norrsken Wifi**
  - SSID:
  - Password:

- **Useful Links:**
  - https://github.com/F48i/2018-Stockholm-Save-the-Rhinos
  - https://github.com/C-X1/PyFlashAero
  - https://www.tensorflow.org/tutorials
  - https://github.com/opencv/opencv/tree/4.0.0/samples

Thanks, let’s start coding

```
this.addData(seg
his);
//Set up tooltip events on the chart
if (this.options.showTooltips){
    helpers.bindEvents(this, this.options.tooltipEvents, fu
        var activeSegments = (evt.type !== 'mouseout') ? thi
        helpers.each(this.segments, function(segment){
            segment.restore(["fillColor"]);
        });
        helpers.each(activeSegments, function(activeSegment){
            activeSegment.fillColor = activeSegment.highlightColor;
        });
        this.showTooltip(activeSegments);
    });
}
this.render();
},
getSegmentsAtEvent : function(e){
    var segmentsArray = [];
    var location = helpers.getRelativePosition(e);
    helpers.each(this.segments, function(segment){
```