Smart Plant Pot

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Free & Open Technologies WS 2019

Agenda

- overview
- smart plant pot structure
- hardware
- back end
- front end
- lessons learnt / challenges
- outlook

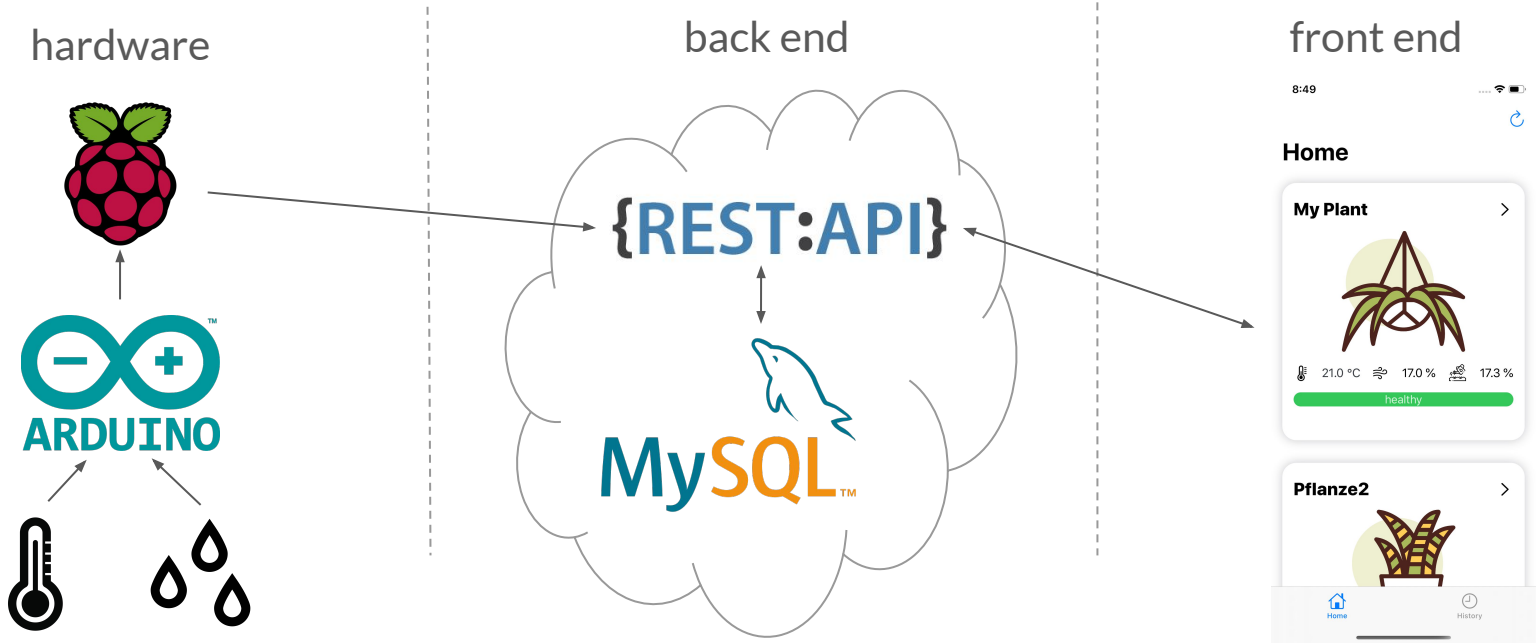
Overview

- motivation
  - encourage people to engage
  - do it yourself character
  - easily extendable or customisable

Overview

- about the project:
  - assisting you in managing your plants at home
  - collects data about your plants (soil moisture, temperature, etc.)
  - notifies you about the status of your plants
- what we deliver:
  - hardware specification
  - open source software: iOS app and back end code
  - documentation (GitHub and swagger for the API)

Smart Plant Pot Structure



Hardware

collects and sends data from of a plant to the server

consists of the following components:

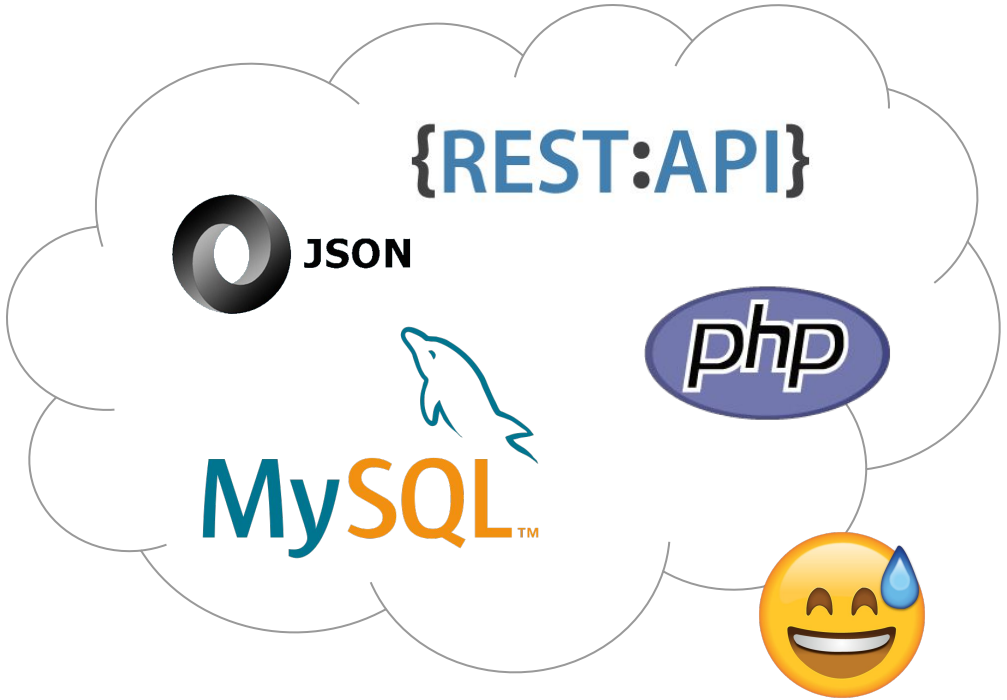
- a Raspberry Pi 3
- an Arduino Leonardo
- a 5 MP camera
- a fluid sensor
- an air-humidity and temperature sensor

Back End

manages the data from the HW and provides it to the iOS app

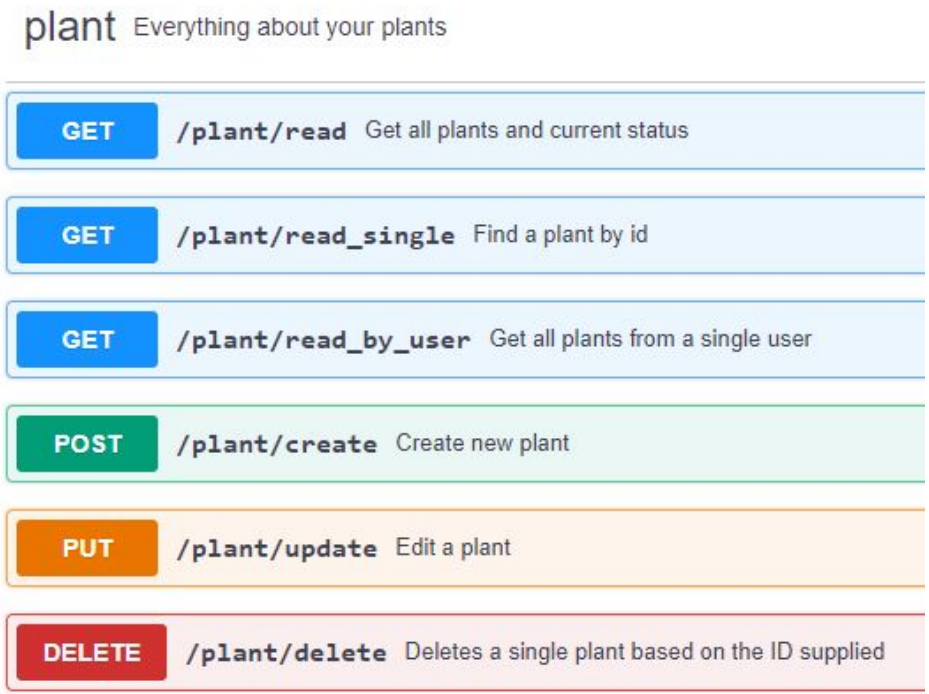
server components

- REST API
- MySQL DB



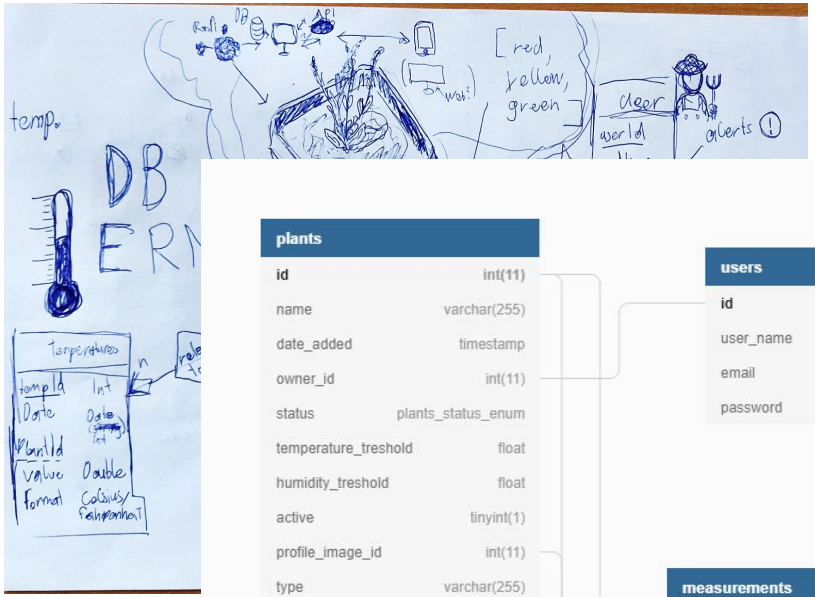
REST API

- HTTP requests
- in PHP - from scratch
- PDO - interface to db
- swagger for documentation



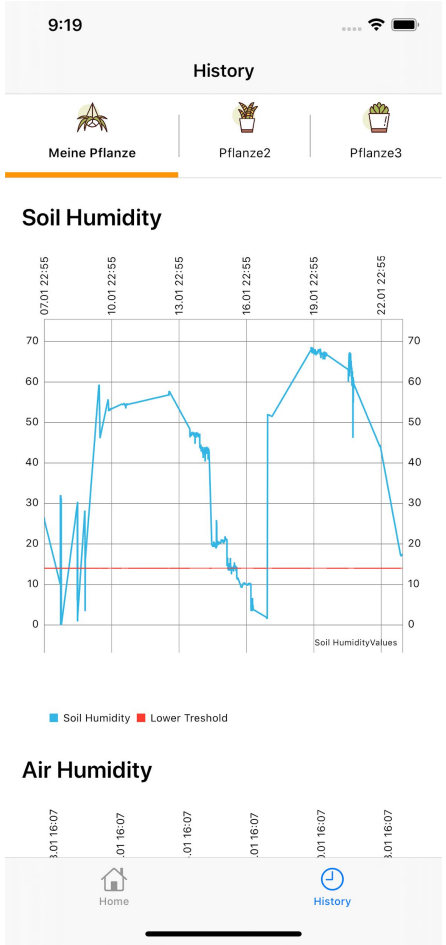
MySQL DB

- ERM import
- provider DB for testing
- personal challenges
  - get latest measurements
  - update profile image
- .sql provided for import



iOS Front End

- IDE: *XCode*, Language: *Swift*
- tab-based layout
  - homepage and history page
  - graphical representation of all the plant data
  - option to edit the plant
  - support and display of a webcam image
- challenges
  - back end coordination, relying on “mocking” first
  - libraries and their dependencies, bugs and “peculiarities”



Demo

Lessons Learnt / Challenges

- “Durchstich”
- organization
- interconnection between the three technology stacks
- interface specification
- interesting to build and design the whole stack

Outlook

- user management
- more compatible sensors (brightness sensor, etc.)
- design a 3D printable plant pot

GitHub Link

https://github.com/Snuu101/Smart-Plant-Pot

Thanks!

Any questions?