SUNRISE

BAP Team D, Group ODROID

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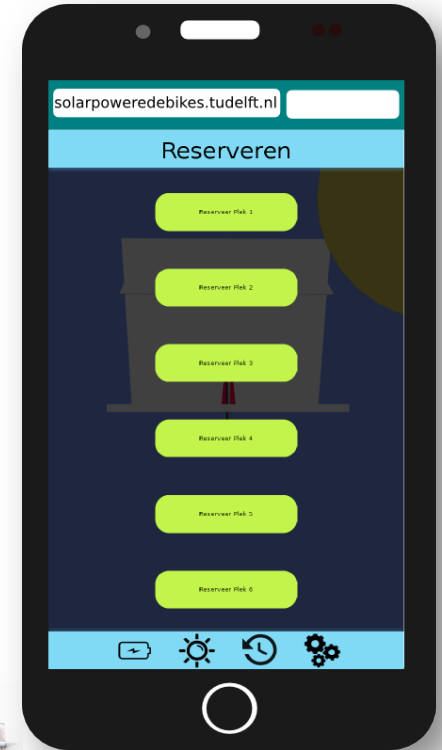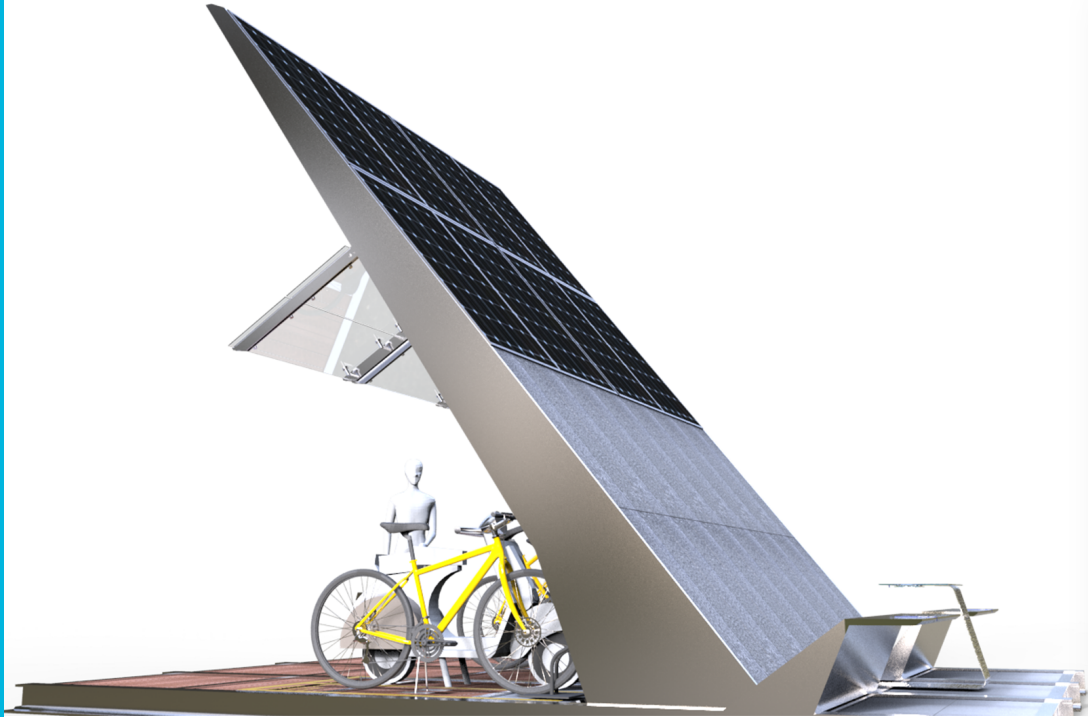
29-6-2016

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Contents

Sustainable Solar Charging Station

Structure

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Structure
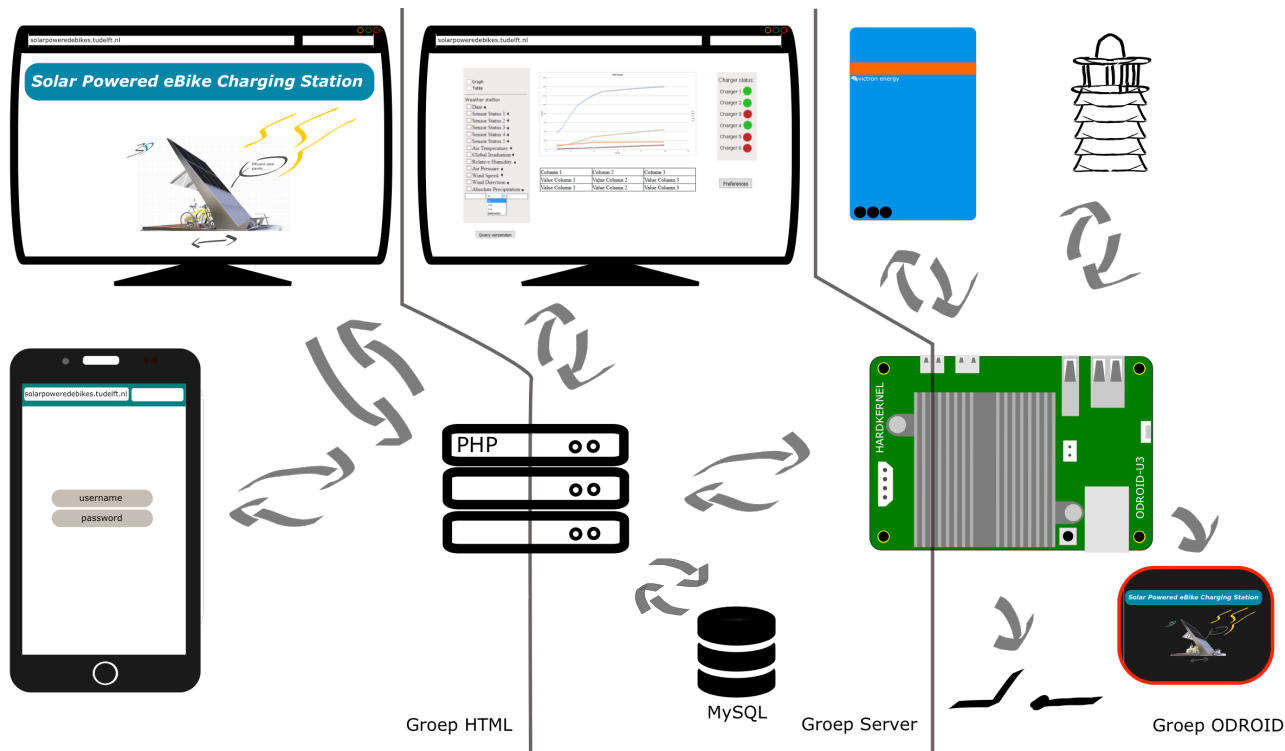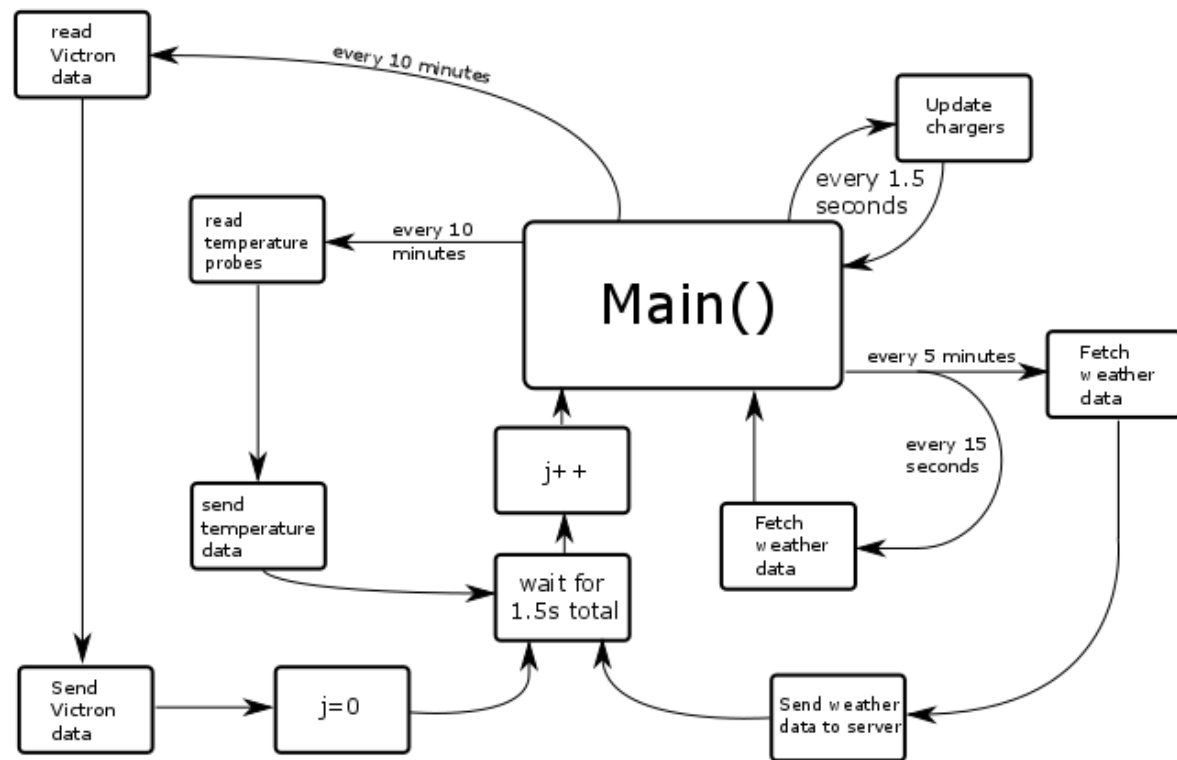
Casting Data

- Some registers contain signed values

- Modbus function stores the result as `uint16_t`

- Use casting to obtain the true value
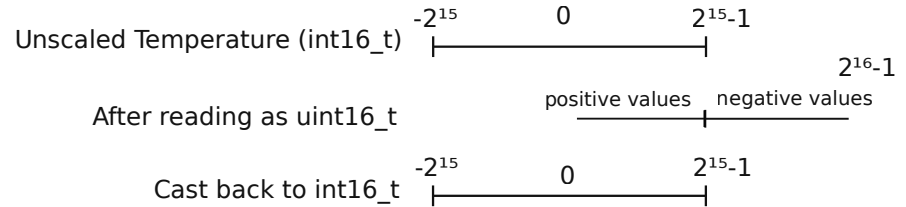
Unscaled Temperature (int16_t)
-2^{15} 0 $2^{15}-1$

$2^{16}-1$

After reading as uint16_t
positive values   negative values

Cast back to int16_t
-2^{15} 0 $2^{15}-1$

Charger Control

- Only switched on when a cable is connected

- Implemented as FSM

- Different behavior during internet failure
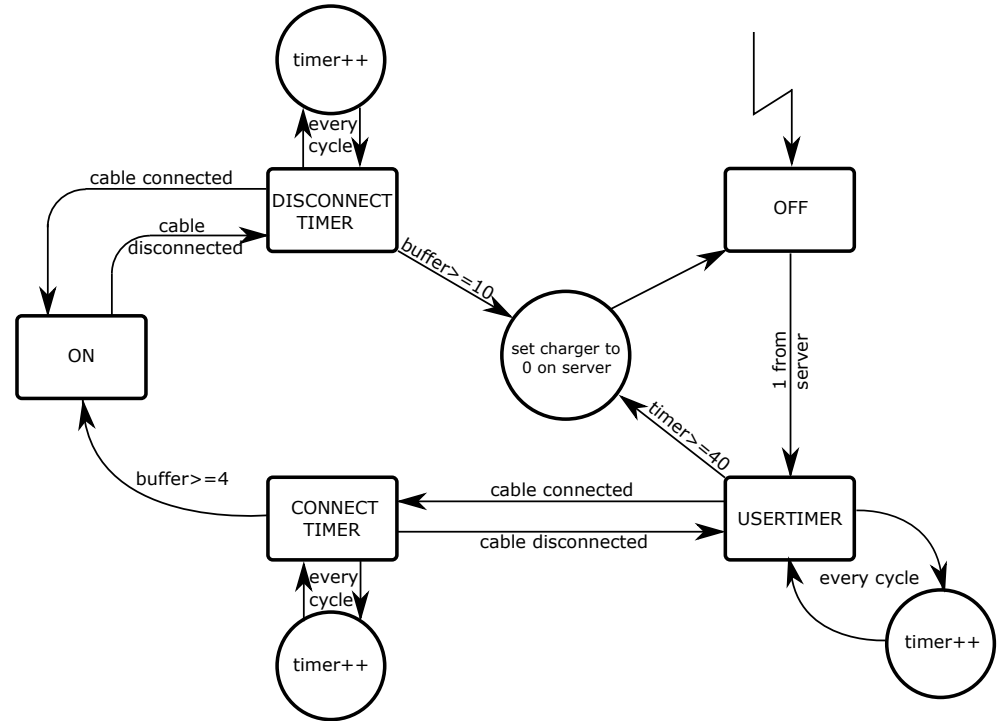
Supportive Work

- Remote desktop

- Booting scripts

- Installation manual

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Future Work

- ## Already done
  - – Dynamic USB allocation
  - – Local display
  - – Motion-controlled LEDs
  - – Cycle timing

- ## Future work
  - – E-bike battery voltage
  - – Failures of the weather station/temperature probes

Conclusion

- Data acquisition

- Control for the chargers

- Local display

- No memory leaks

- Stable/robust code

- Proof-of-concept motion-controlled LEDs

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