ADAM (Lia-project 2018)

Ad display activity monitor

About us...

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we’re studying software development embedded systems (Internet of Things) at Mölk Utbildning.

<- Edvin
(we forgot to take a group photo)

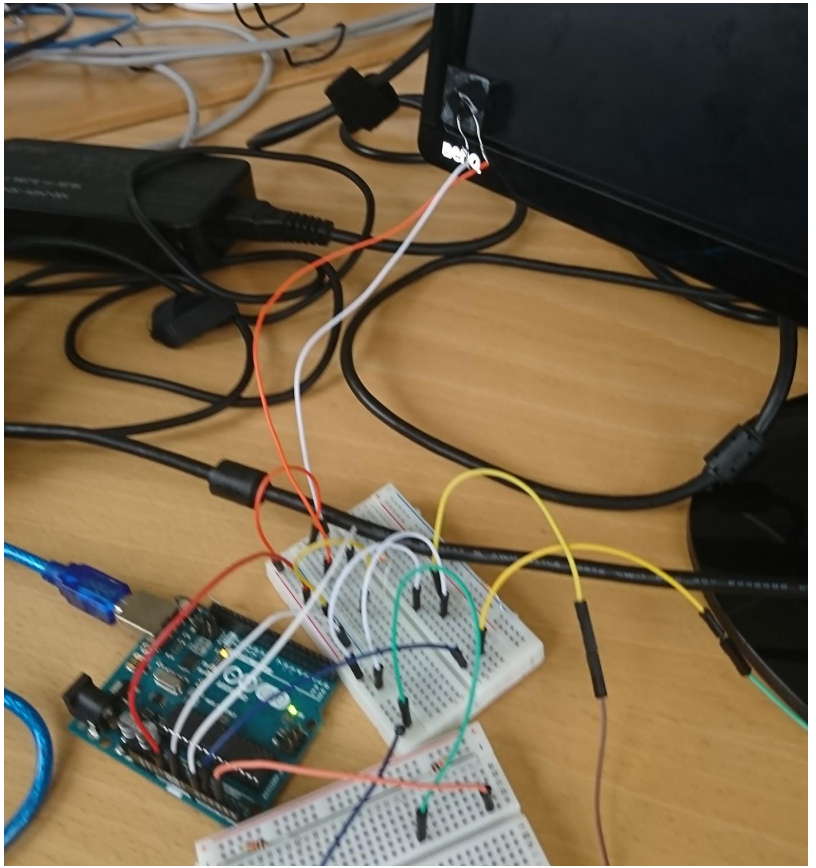
Our task

- With many ad displays it is not possible to see if they work without actually being there
- With a web interface you could see the status of the displays (if they work, the image is not frozen)
- By mounting a LDR on the corner of the screen you can see light intensivity
- You can then detect if the display is on or off (on an LCD, you can also detect a black image since the backlight will produce some light)
- You have to design a good enclosure to ensure that no sunlight gets through.

Enclosure

We made dozens of prototypes with the 3D-printer at Mölk lab.

We had to test with computer monitors until we got our hands on a real monitor used for ads.

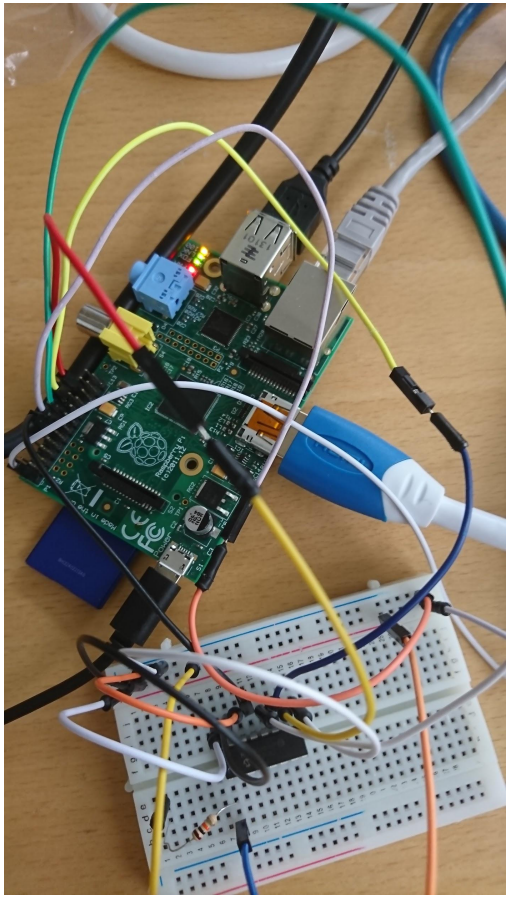


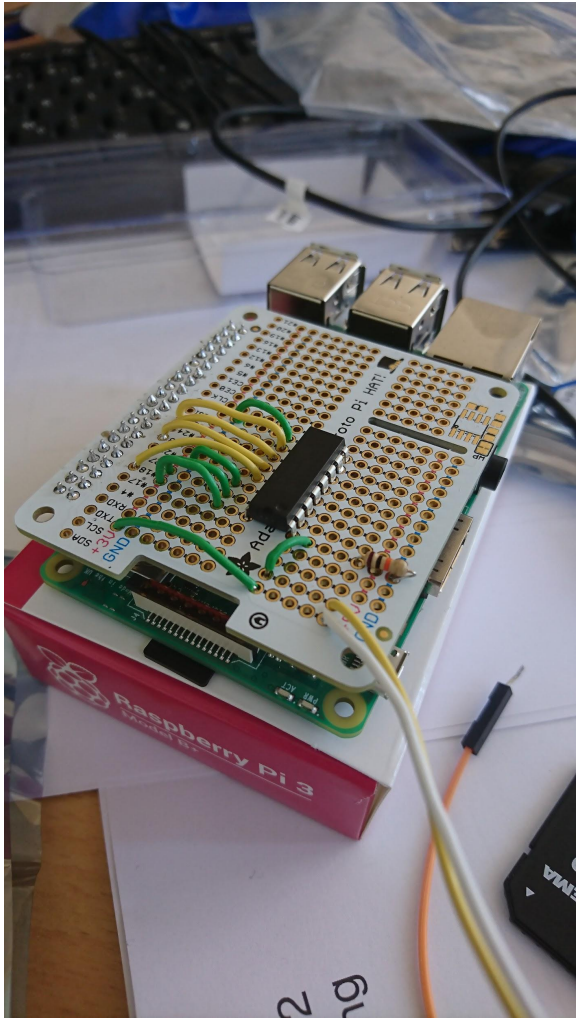
Client

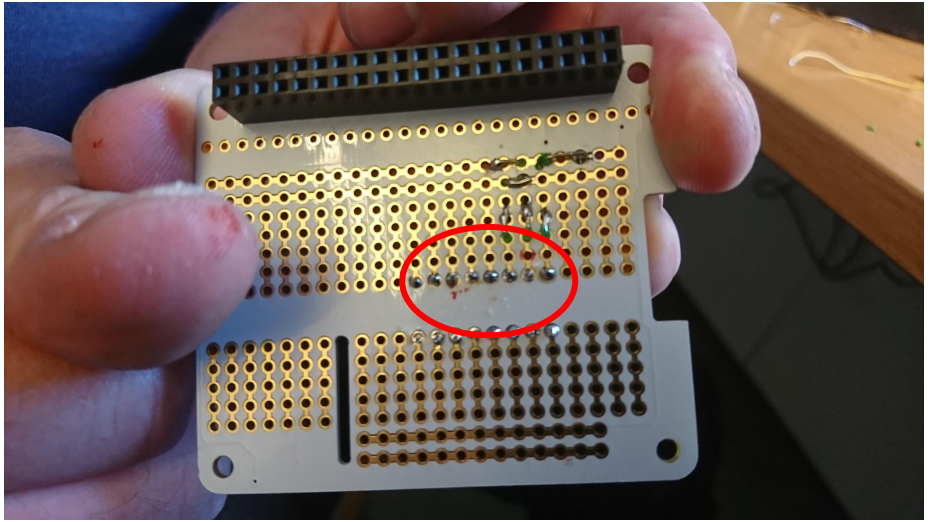
We tested different solutions, Arduino with ethernet shields and Raspberry Pi.

Since we got a requirement for Wifi support, we decided to use Pi because the ESP8266 is a bit finicky.

A problem with Pi is that they do not have a built in A/D converter, we ordered an external ADC instead.



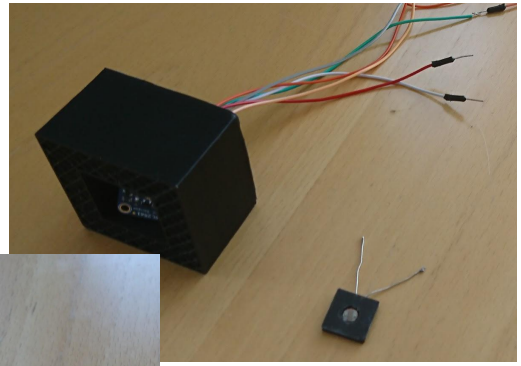


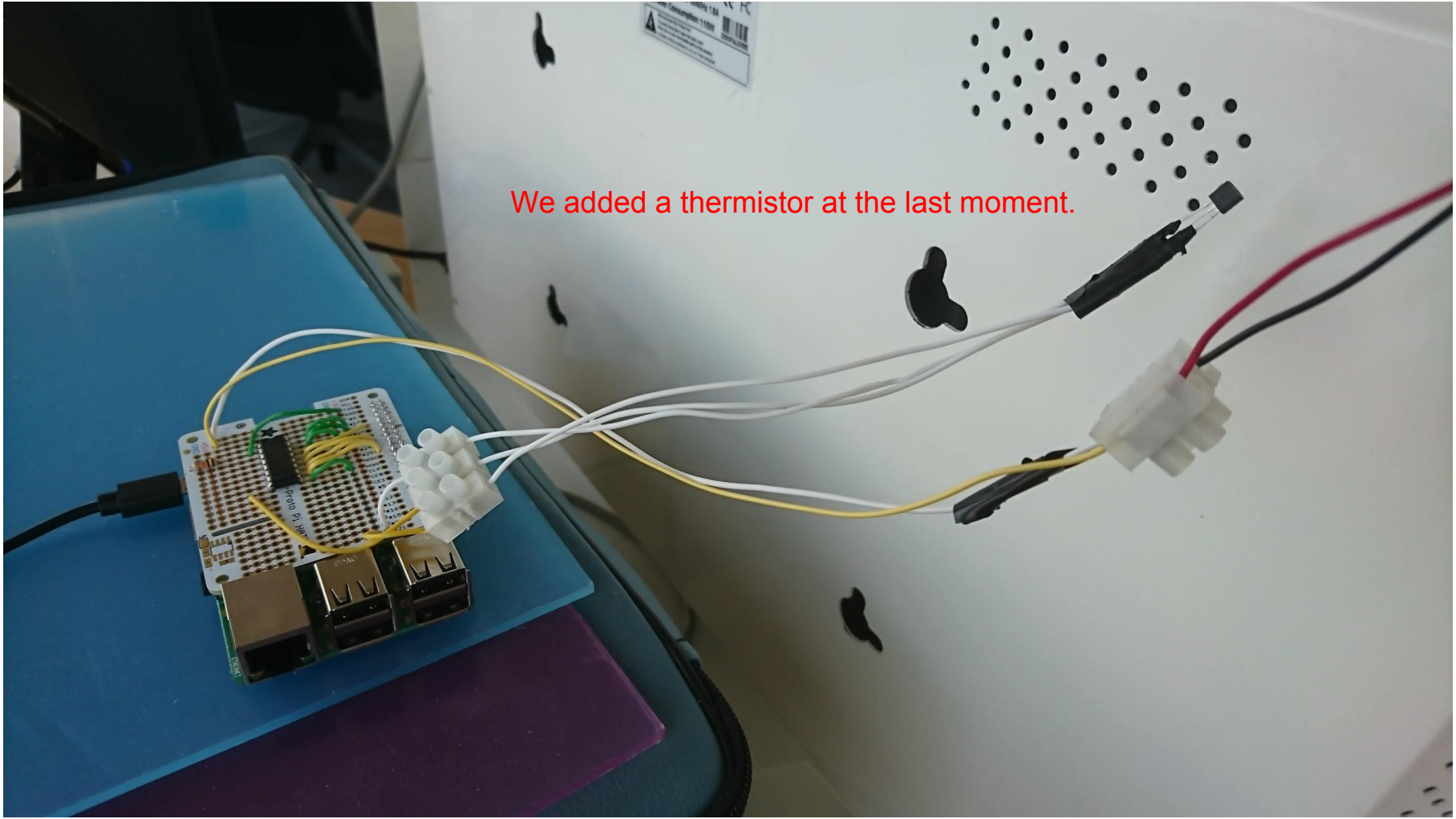


Thanks to our blood offering to the electronic gods our prototype board worked at the first try.

Working prototype, but a little bulky

Smaller and better looking prototype, but we had problems printing this.




We added a thermistor at the last moment.

Web server

We used Python / Django.

Django is easy to use, even if you’re not into web development.

Not much code required to define models and actions.

It’s also easy to install on any server, and it supports many different databases.

ADAM

Welcome, testuser. Thanks for logging in.

Logout | Device list

Device list

Name	Position	Last status	Update time	Temperature
adam-client1	Raspberry pi 3b+	Display frozen	May 30, 2018, 10:49 a.m.	18.6 °C
Ny enhet 1		No status reported		Nothing reported

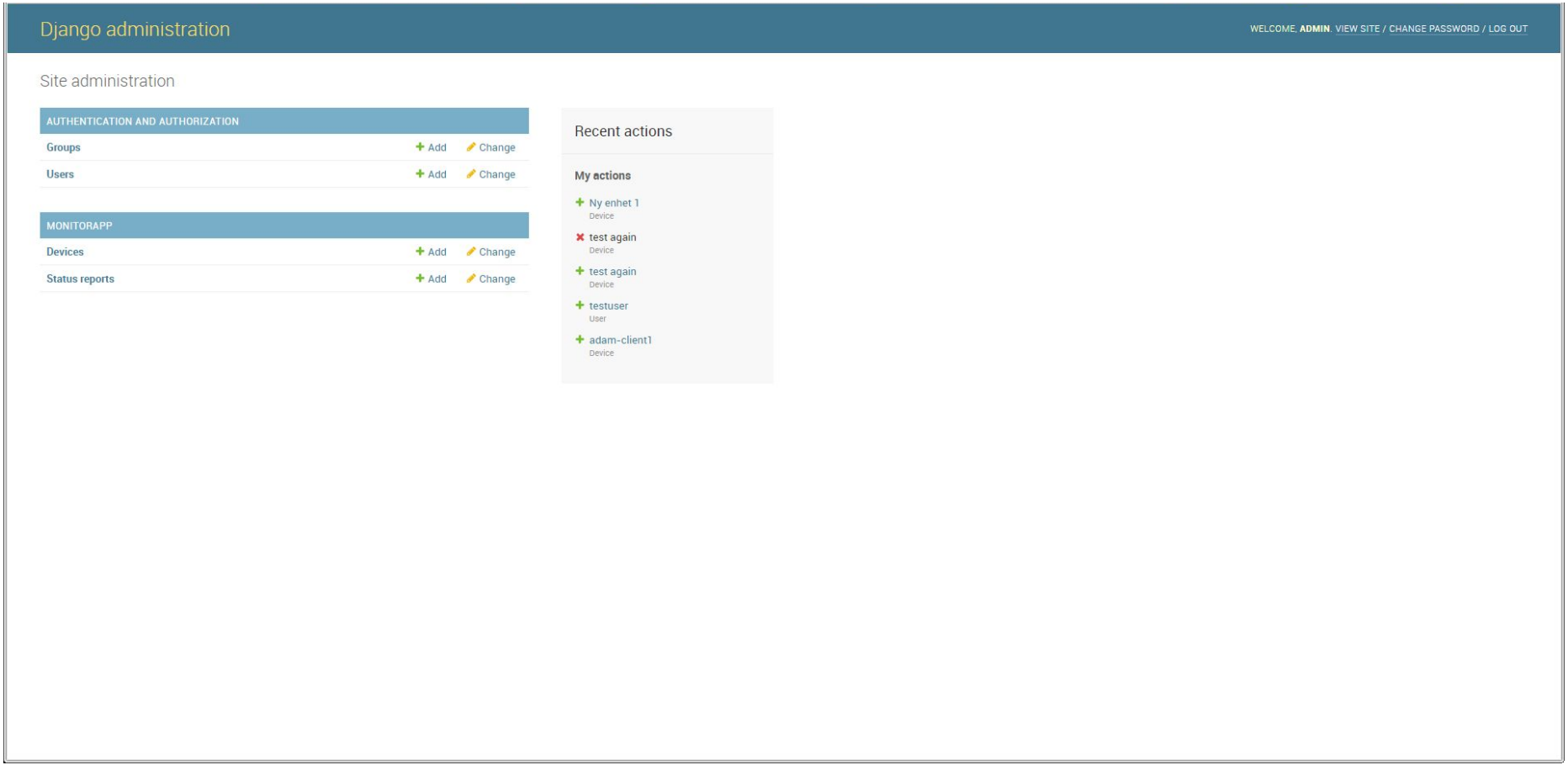
ADAM Welcome, testuser. Thanks for logging in.
Logout | Device list

adam-client1

From	To	Status
May 30, 2018, 10:46 a.m.	May 30, 2018, 10:48 a.m.	Display frozen
May 30, 2018, 10:15 a.m.	May 30, 2018, 10:44 a.m.	Display on
May 30, 2018, 10:13 a.m.	May 30, 2018, 10:14 a.m.	Display off
May 30, 2018, 10:13 a.m.	May 30, 2018, 10:13 a.m.	Display on
May 30, 2018, 6:31 a.m.	May 30, 2018, 10:12 a.m.	Display off
May 29, 2018, 2:56 p.m.	May 29, 2018, 7 p.m.	Display off
May 29, 2018, 2:55 p.m.	May 29, 2018, 2:56 p.m.	Display on
May 29, 2018, 2:13 p.m.	May 29, 2018, 2:54 p.m.	Display frozen
May 29, 2018, 1:43 p.m.	May 29, 2018, 2:12 p.m.	Display on
May 29, 2018, 1:41 p.m.	May 29, 2018, 1:41 p.m.	Display frozen
May 29, 2018, 1:40 p.m.	May 29, 2018, 1:41 p.m.	Display on
May 29, 2018, 1:39 p.m.	May 29, 2018, 1:39 p.m.	Display off
May 29, 2018, 12:49 p.m.	May 29, 2018, 1:38 p.m.	Display on
May 29, 2018, 12:34 p.m.	May 29, 2018, 12:47 p.m.	Display frozen
May 29, 2018, 12:04 p.m.	May 29, 2018, 12:33 p.m.	Display on
May 29, 2018, 11:58 a.m.	May 29, 2018, 12:03 p.m.	Display frozen
May 29, 2018, 11:47 a.m.	May 29, 2018, 11:58 a.m.	Display on
May 29, 2018, 11:47 a.m.	May 29, 2018, 11:47 a.m.	Display frozen
May 29, 2018, 11:45 a.m.	May 29, 2018, 11:46 a.m.	Display on
May 29, 2018, 11:42 a.m.	May 29, 2018, 11:44 a.m.	Display frozen

« 1 2 3 4 5 »

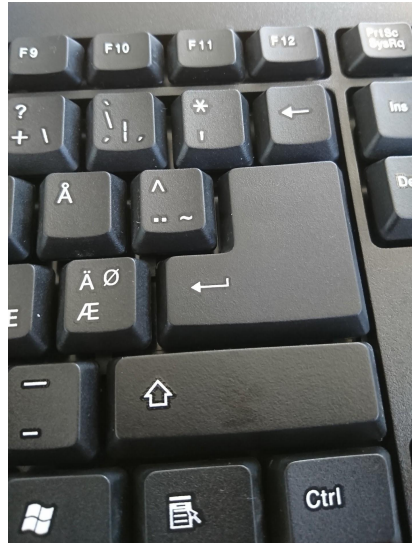
Back to device list | Reload page


Django administration
WELCOME, ADMIN. VIEW SITE / CHANGE PASSWORD / LOG OUT
Site administration
AUTHENTICATION AND AUTHORIZATION
Groups + Add Change
Users + Add Change
MONITORAPP
Devices + Add Change
Status reports + Add Change
Recent actions
My actions
Ny enhet 1
Device
test again
Device
test again
Device
testuser
User
adam-client1
Device

Tack !

Thanks to

- Magnus Mölk for helping us with the 3D printer.
- Magnus Pettersson for supervising.



No thanks to:

- Ians purchases at Kjell (the worst keyboard and the longest USB-cable)

Questions