Coffee Machine v1

Archived Project

This project was made around 2009/2010. It was later decommissioned and disassembled because it took too much space. This documentation is also from around then.



Omega Verksted has it's own, custom made, automatic Coffee-machine. It's built around a standard Moccamaster coffemaker, To prepare the coffee it uses two small hoovers to pick up a coffee-filter, and a motorized grinder to grind beans from three different reservoirs.

In addition to make coffee the machine serves a web-page through it's Ethernet-interface, although it will never respond with http-error 418 - «I'm a teapot». The web-server is powered by an 8-bit Atmel ATmega128. Internally the different cards talks to each other via the can-bus protocol

The machine was built in 2009/2010 mainly by Espen Øybø and Eirik Steen-Hansen.

Controlling the coffee-machine:

The coffee machine is controlled over tcp/ip (also known as «da intawebz»). There is a command-line tool to control the machine, manly by setting it to the wished internal state.

The State machine:

This state machine is deprecated!

- 18: Grinds the coffee.
- 19:
- 20:
- 21:
- 22:
- 23:
- 24:
- 25: Moves the coffee-water-nozzle.
- 26: Boils the water?
- 27:
- 28:
- 29:

Code

Source code and circuit-board layout

The svn repositories for the Coffee-machine is as follows: TODO: add all circuit-board layouts to the repos.

- https://incomplete.ed.ntnu.no/coffee/Base
- https://incomplete.ed.ntnu.no/coffee/Current
- https://incomplete.ed.ntnu.no/coffee/Garbage

- https://incomplete.ed.ntnu.no/coffee/IR
- https://incomplete.ed.ntnu.no/coffee/Main
- https://incomplete.ed.ntnu.no/coffee/Motor1
- https://incomplete.ed.ntnu.no/coffee/Motor3
- https://incomplete.ed.ntnu.no/coffee/OnOff
- https://incomplete.ed.ntnu.no/coffee/PC
- https://incomplete.ed.ntnu.no/coffee/PC_Test
- https://incomplete.ed.ntnu.no/coffee/Vacuum
- https://incomplete.ed.ntnu.no/coffee/VoiceSynth
- https://incomplete.ed.ntnu.no/coffee/Watchdog
- https://incomplete.ed.ntnu.no/coffee/Water
- https://incomplete.ed.ntnu.no/coffee/Weight

Build and flash

The fuse settings for the standard coffee-machines mcus with bootloader enabled:

- Without crystal:
    - efuse: 0xff
    - hfuse: 0xd8
    - lfuse: 0x24
- With crystal:
    - efuse: 0xff
    - hfuse: 0xd8
    - lfuse: 0x3f

Documentation

For more documentation try to:

- Type 'help' in the command-line tool.
- Ask Espen or Eirik