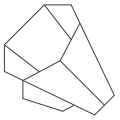

Purpose

Make a driver that can be used by high-level programmers to display numbers on the 7-Segment display on the ATMEGA Shield.

API for Driver

Final interface on driver **must** be:

```
void display_7_segment_create()
void display_7_segment(float value, uint8_t no_of_decimals)
```

The parameters for *display_7_segment(...)* should be:

Value:	The floating point value to show on the display
No_of_decimals:	How many decimals the value should be shown with on the display [0..3]

E.g.

f = 3.183752164368

display_7_segment(f, 0);

shows 0003 on the display.

display_7_segment(f, 1);

shows 003.2 on the display.

display_7_segment(f, 2);

shows 03.18 on the display.

Leading zeros can be omitted.

Design

The driver must be efficient; thus all conversions, of the float value to the internal format used by the driver, must be done only once during the call of *display_7_segment(...)*.

No busy waiting is allowed in the driver!! The multiplexing of the display must be done with interrupts.

Hand-in

The hand-in must contain two implementations of the driver. One using SPI and one without to load the shift register 74HC595.

Included in the hand-in there must be timing diagrams (Wavedrom editor) showing how all the signals are controlled. Additional diagrams is very welcome. All source code, documented with Doxygen, must also be handed in.