

# LABORATORY

**Microcontroller**

5

EXPERIMENT:

**Time Clock**

Write your name in every sourcefile you edit and compile the code with your matriculation number (variable in the template). All files should contain all names of the persons who made changes. Do use the @author tag for this (as available in the headline of template files).

**Task 1:**

Create the time clock with the MyAVR hardware.

So the main algorithm for this lab was first to assign two places in the Ram of the RTC (from 08h to 3Fh):

- 1- 0x08 is assigned as the present flag (0 = absent, 1 = present)
- 2 - 0x09 is assigned to the position inside the EEPROM (from 0 to 255).

we could make another variable to count the number of working days, but since we already know that each day takes 6 bytes, we can know the number of working days by dividing the value in the RTC\_ram 0x09 by 6  
 $(ds1307\_read(0x09)/6) = \text{the working days.}$

Then the reset of work, was in writing the `button_arrive()`, `button_leave()`, and `read_data()` functions.

`uint8_t p = ds1307_read(0x09);` // This line was used to assign the value in the RAM to a variable called "p" referring to the position.

Then write the values to the EEPROM accordingly when he pressing either buttons. lastly, I used the present flag value (inside 0x08), to check if he is already present or absent to ask the user if he wants to overwrite.

For the `read_data()` function, I have read the data in the opposite way I have written them using a for loop and a while loop inside the for loop to check if the user pressed anything to go to the next, or previous iteration.

Finally the test mode didn't take much time, I had just to make a research to understand how to work with the C preprocessor.