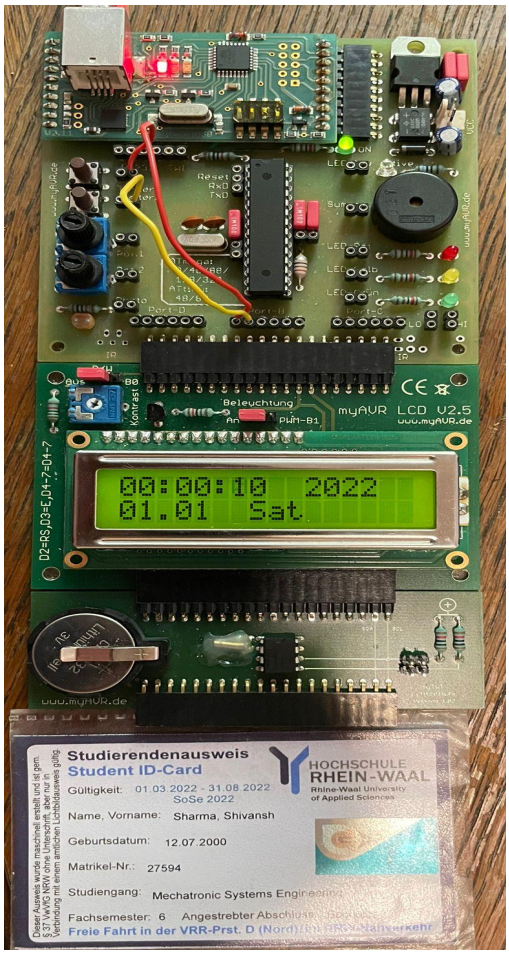
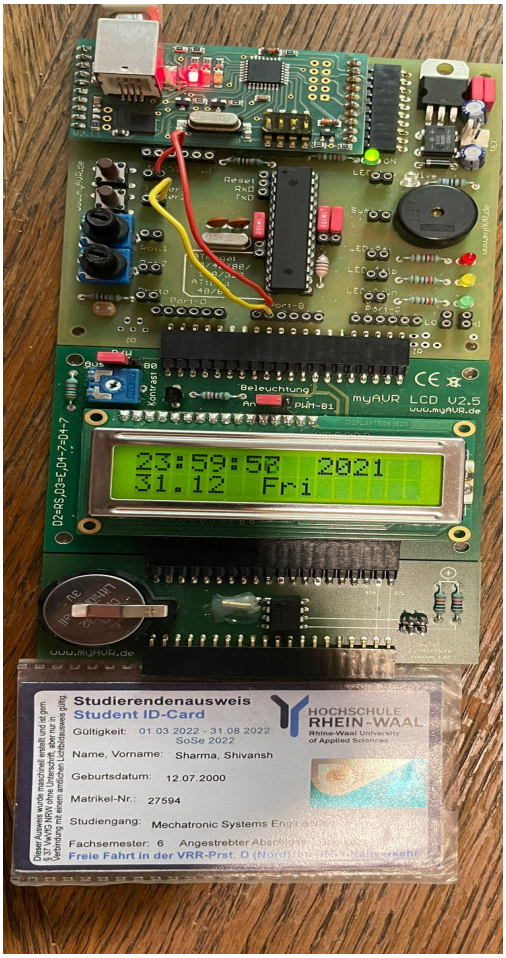
Task 1:

Arrangement :

- Pin B0 → Key 1
- Pin B1 → Key 2

The real running digital clock has been coded with the help of DS1307. Pressing the Key 1 freezes the clock and then pressing it again resumes it. Pressing the Key 2 resets the clock to: 31.12.2021, day 5, 23:59:55.
The clock remembers the last state (saved onto RTC ram address 0x27) and continues in the same state whenever reconnected with the power supply.





Task 3:

Arrangement :

- Pin B0 → Key 1
- Pin B1 → Key 2

In this task, I entered my course (SE) and matriculation number (27594) in the RTC RAM.
It first looks for a pre-stored matriculation number and displays it. But if there is no matriculation number stored on the RTC module, it writes my matriculation number (SE27594) on the RTC module and shows that.
It also retains the state (clock paused or not) even when turned off and then turned on, which is saved onto RTC RAM (address: 0x27).