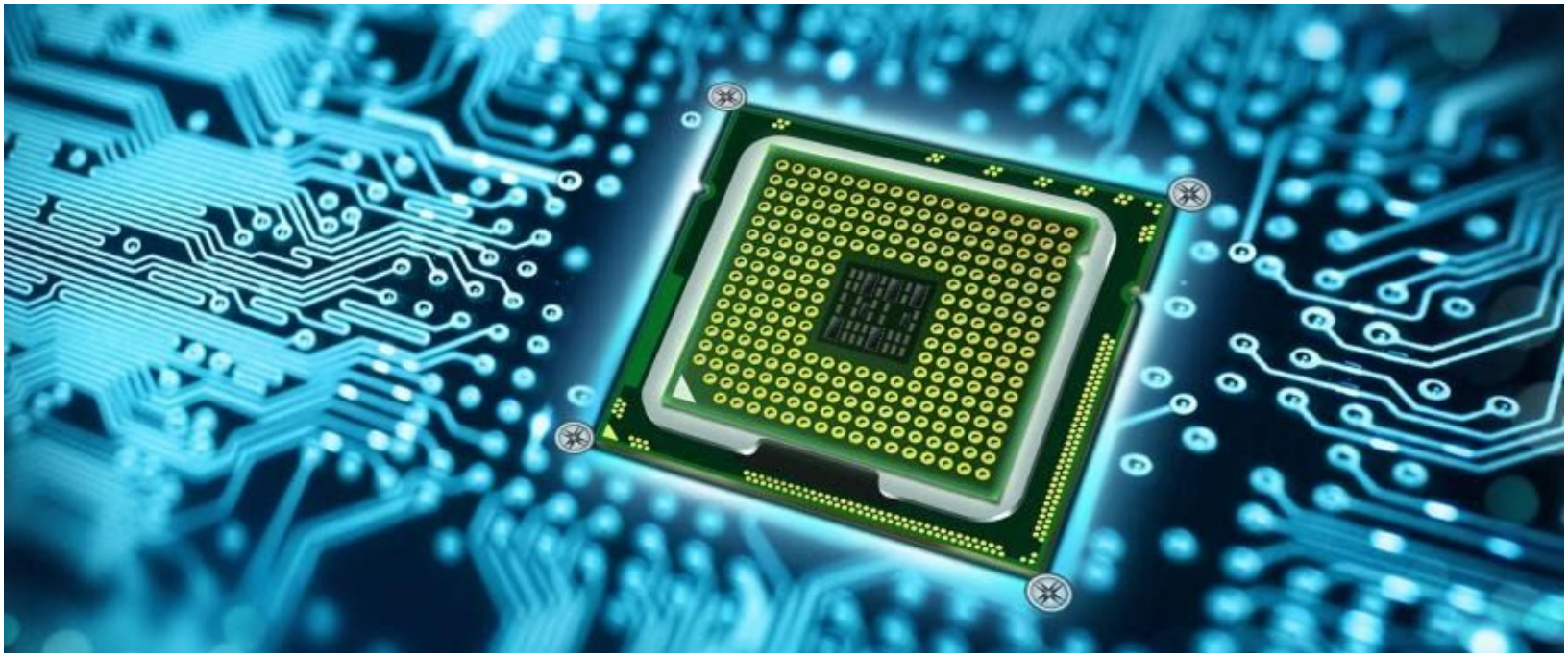
Microprocessor Project Report

Phase 3



Group 1 - Smart Water Tap

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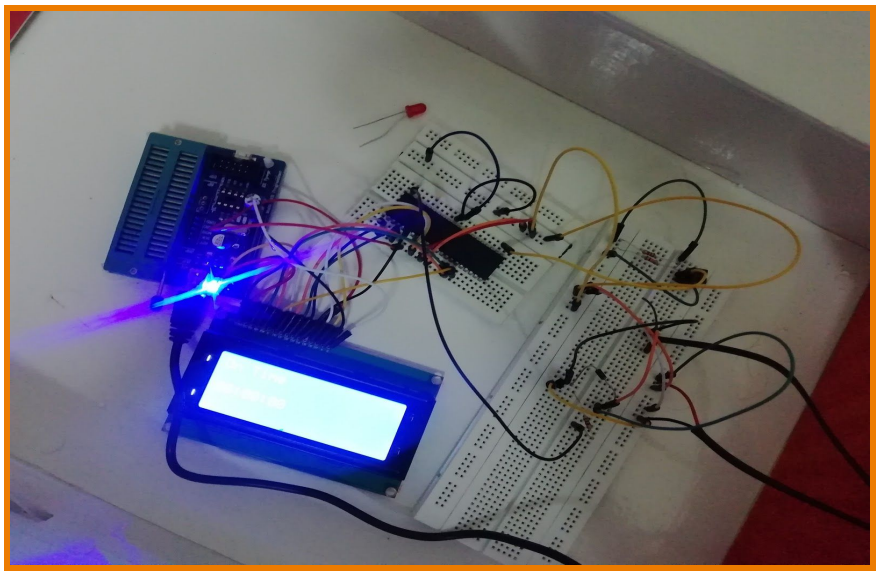
The purpose of the third phase of our project, was the Physical Implementation.

Based on the electronic parts sheet that was planned in the first phase, our team assembled the real life circuit of a smart tap: The sensor detects the user's hand, opens the valve; and then when the user removes their hand, the valve closes. An LCD also shows the Duration in which the valve was working. Our circuit is assembled on a Breadboard using an ATMega16A microprocessor, and a solenoid valve.

Some Photos of the project (Complete collection of the photos included in the folder):

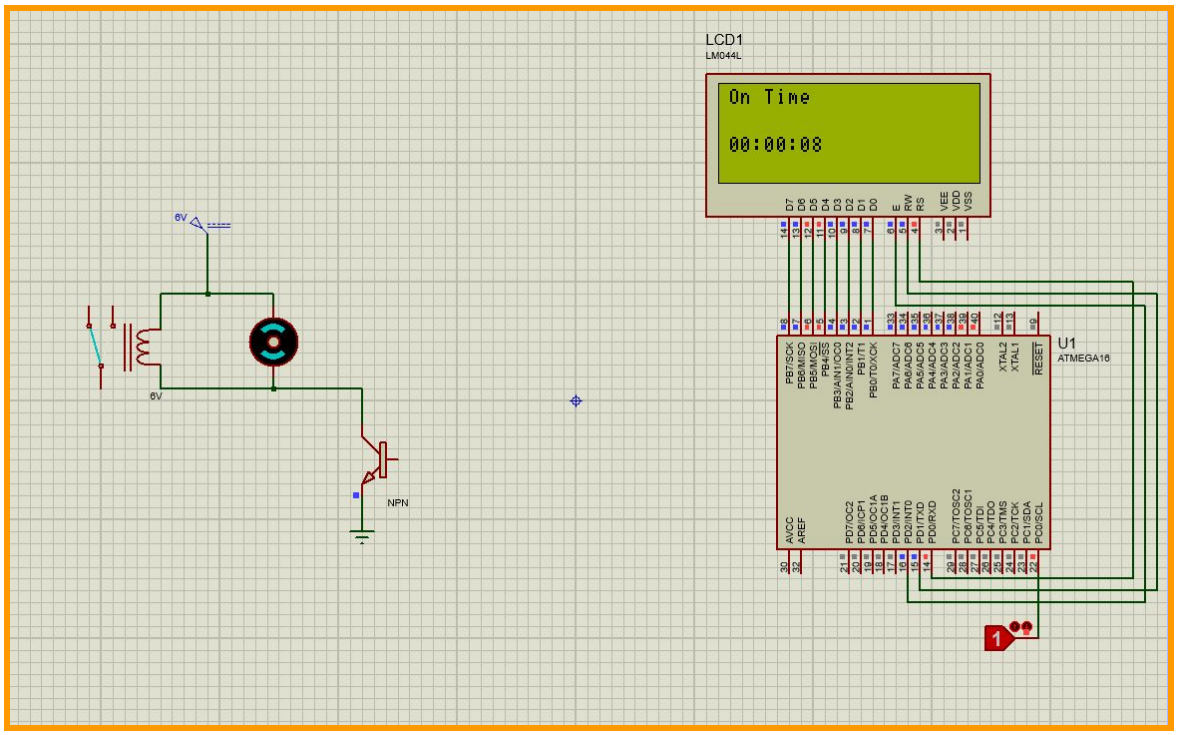


Also, some changes were made to the source code and the circuit simulation (Proteus) to match the real life properties of the electronic parts.

The Source Code:

```
// Timer1 overflow interrupt service routine
interrupt [TIM1_OVF] void timer1_ovf_isr(void)
{
// Reinitialize Timer1 value
TCNT1H=0x85EE >> 8;
TCNT1L=0x85EE & 0xff;
// Place your code here
if(is_on)
{
    second++;
    if (second == 60)
    {
        second = 0;
        minute++;
        if (minute == 60)
        {
            minute = 0;
            hour++;
            if(hour == 24)
            {
                hour = 0;
            }
        }
    }
}
```

The Simulation:



The Video of the working project:

https://drive.google.com/file/d/1VHuBkKiBPNBwOUvBldum7_Xlq3W_ig7j/view?usp=sharing

GitHub Link:

https://github.com/MinaTahaei/SmartTapAVR