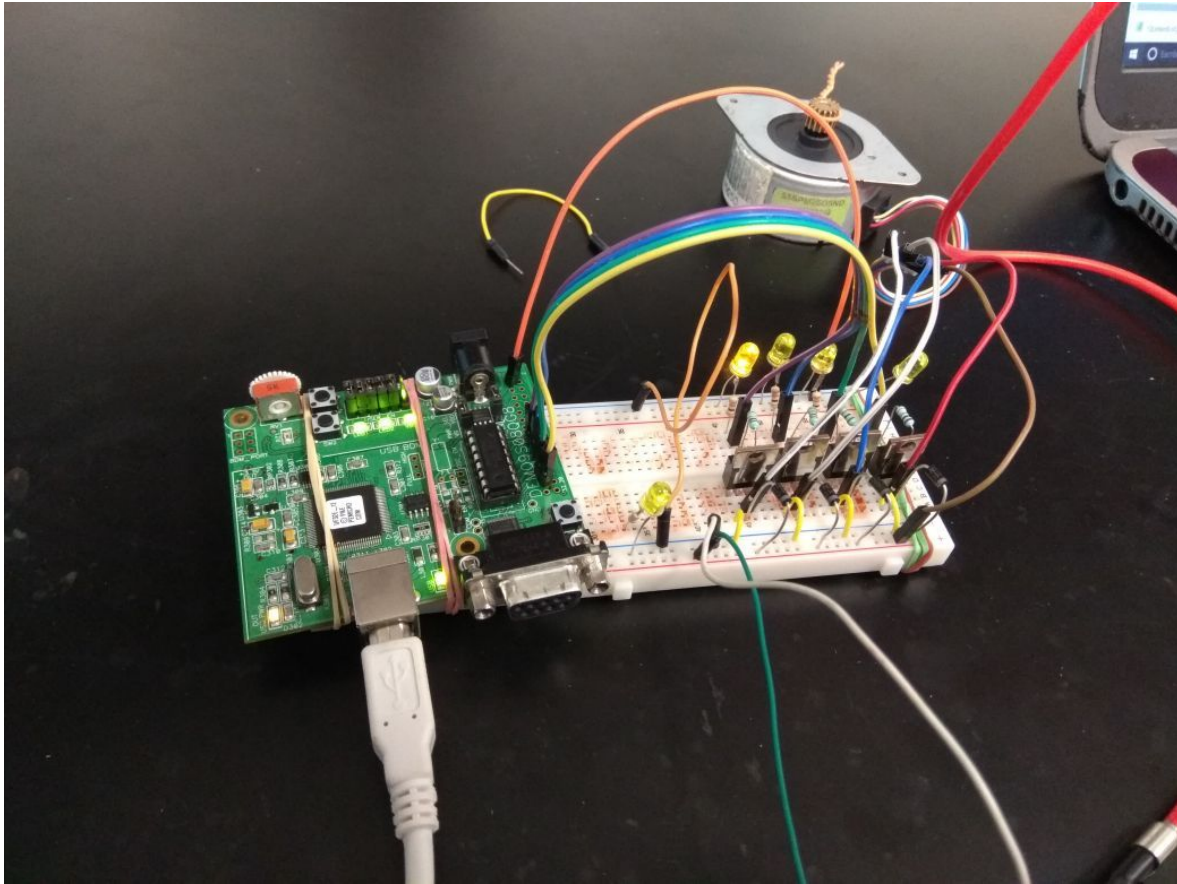


## Circuit built for this practice

For this practice we used the same hardware than the practice 2.



### Decisions taken:

The first decision we made was about changing the timer. At the beginning we used the RTI, but we had an issue with it because the periods were not as precise as we wanted. That is why we decided to use a different timer: the MTIM. It was more precise. With a prescaler of 256 it was possible to achieve periods of  $64\mu\text{s}$ .

Secondly, we set interruptions to make it possible to build the system without polling. We used the interruption of the MTIM and the ADC. The first one in order to give each of the steps, and the second one to give to the timer a new value to compare, this value was read from the potentiometer.

It is important to mention that we used layers to code in order to make it clearer.

## **Problems met during the development of the Project:**

During this practice some of the problem we had was selecting which timer to use, because on the last practice we used SRTI which was not precise so for this one we decided to use first was TPM but it didn't work, so then we talked to some friends who had already done this practices and we decided to change to MTIM because it was precise, easier to use, and it worked. Also we had some problems working on the interruptions because we had to leave processing to functions outside from the interruptions, so we did this by making functions, but they didn't worked at first because we left some flags on inside the interruptions. Also we had problems with the interruptions at the beginning because we couldn't execute the interruptions but it was because we didn't had that interruptions enabled.

## **Conclusion:**

Julio:

I learned more of the timers and the importance of some pins that we might use in the future. All the problems we had during this practice were very confusing like the timer TPM because we couldn't find out what was wrong, some friends guided us and told us that we could need a pin for a future practice was part of another practica in the future so we had to change to MTIM, with this timer we finally did it, everything was right but the code was coded bad, so we had to change it to achieve what was expected from us.

Lourdes:

From this practice what I learned the most is that it is important not to process inside the interruptions, but you can make flags that control different processes.

Learning a new timer was a good achievement because now i can make more precise periods.

And what I will keep practicing is coding in layers, because when is well done everything works and the code is clear.

Jorge:

This practice was more difficult than the last one because at the beginning we decided to use the TPM module in order to make the timer but it was not possible for us to make it work. So we decided to use the MTIM module and it was easier to

program and at the end it was very accurate, we achieve a time of 4.99seconds in the time test of 5 seconds. My favorite part was make the code using layers because the main.c looks compact and easier to understand. The teacher suggested to move the interruptions from the main.c to the respective module layer it was interesting and easier to do, so at the end we made a clean and useful code.