# **Challenges**

* The design of the car wasn’t trivial and placing the components was challenging. The late announcement of the project made it much harder for us to think clearly and experiment with ideas due to shortage of time.
* We didn’t have a microcontroller and we couldn’t purchase a new one because it was hard to find and really expensive. We used the lab’s Arduino Uno while we were in the faculty.
* We faced many problems with the DC Motors like the 2 motors not giving the same speed, stopping if the rotation direction was changed, and stopping if the speed was low.
* The Digital Line Tracker Module wasn’t following the line accurately so we had to use analog sensors.
* Analog sensors (TCRT5000) were complicated to connect with the microcontroller due to the required resistors that should connect with the sensors and welding everything to the PCB BreadBoard. Sometimes the sensors don’t give a reading in the same range, and eventually most of them stopped working properly so we had to purchase more.
* We faced problems in the maze where the car rotated around itself and entered loops.
* A lot of code modifications to tune the constant values for motors speeds and PID controlling constants.