

The Problem

One of our biggest problems is to find all victims in the maze, the fastest way possible. As we don't have to find the end of the maze, to find all victims, all we have to do is go everywhere in the maze.

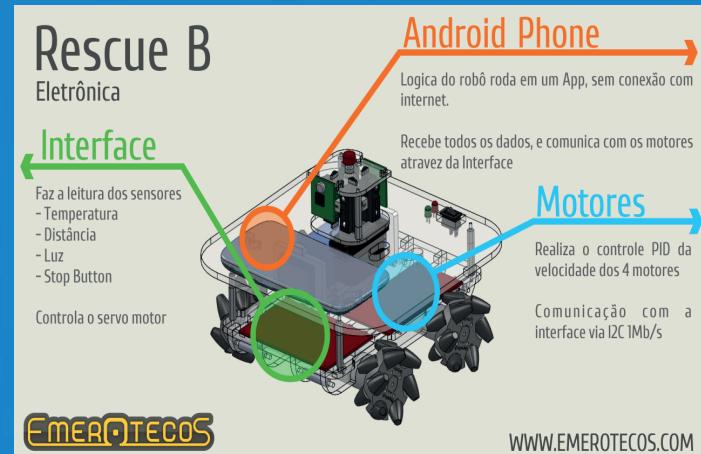
The Robot: Mechanics

This year, we said bye to the NXT brick, thanks to its weight, and to its engines size. We decided to build from sketch an entire robot, using 2 5mm acrylic layers and some acrylic beams under the structure to support the engines and the electronics.

The MECANUM wheels, are just like an ordinary omnidirectional system, but with the wheel mounted in a different way.

We use a servo in the center of the robot, that is used to move the sensors, giving them a bigger reading area.

Our robot measures 200x200mm, which makes it possible for the robot to spin without touching the walls. We use 5mm acrylic, because we know (by tests) that it is tough enough. We cut it with laser (on CopyExpress) giving us a 0.01cm precision. All drawing have been made on SolidWorks! We also used a 3D printer to do some parts on our robot, like the thermopile array's stand.



The Robot: Electronics

Yes, we use a cellphone! As we use very complex algorithms, we need a very complex processing unit, that's why there is an Android phone on our robot. Android because we can program using java, without any problem, and we still have a LCD screen, and a touchscreen panel, with which we can make the initial configurations.

To fire up the engines, read the sensors, and control the engines position, we have, basically 2 PCB's.

To feed the monster, we use a liPo battery, which gives us 11.1v, 65A, and is very lightweight.

