ROBOTS TO THE RESCUE
TEAM 7

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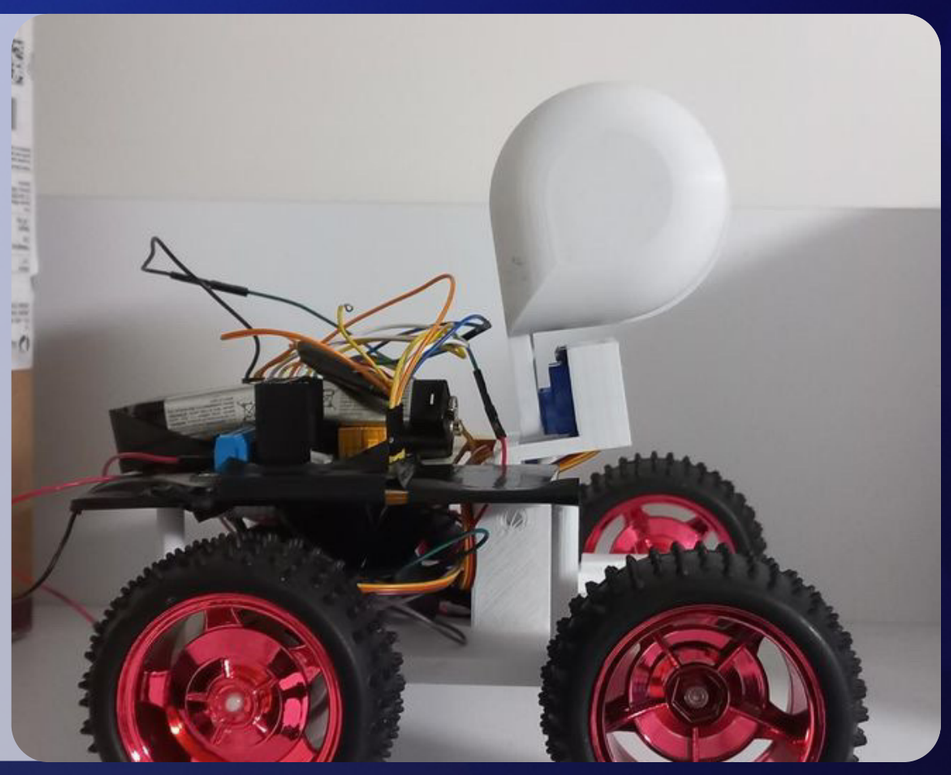
AESTHETIC APPEAL

Our robot is 3D printed and a clean white, providing a simple and modern aesthetic. Although hiding electronic would be nice it is necessary that they are easily accessible for rewiring or changes to the robot.
Moreover, our grips are designed to be aesthetic and functional, our left and right grips are designed like spoons, enhancing the capability to rescue victims (which is represented with a tennis ball).
Our aesthetic philosophy is to keep everything as simple as possible, therefore in our design, we never considered adding unnecessary decoration and components, which not only cost effective and also made the whole design process more effective.

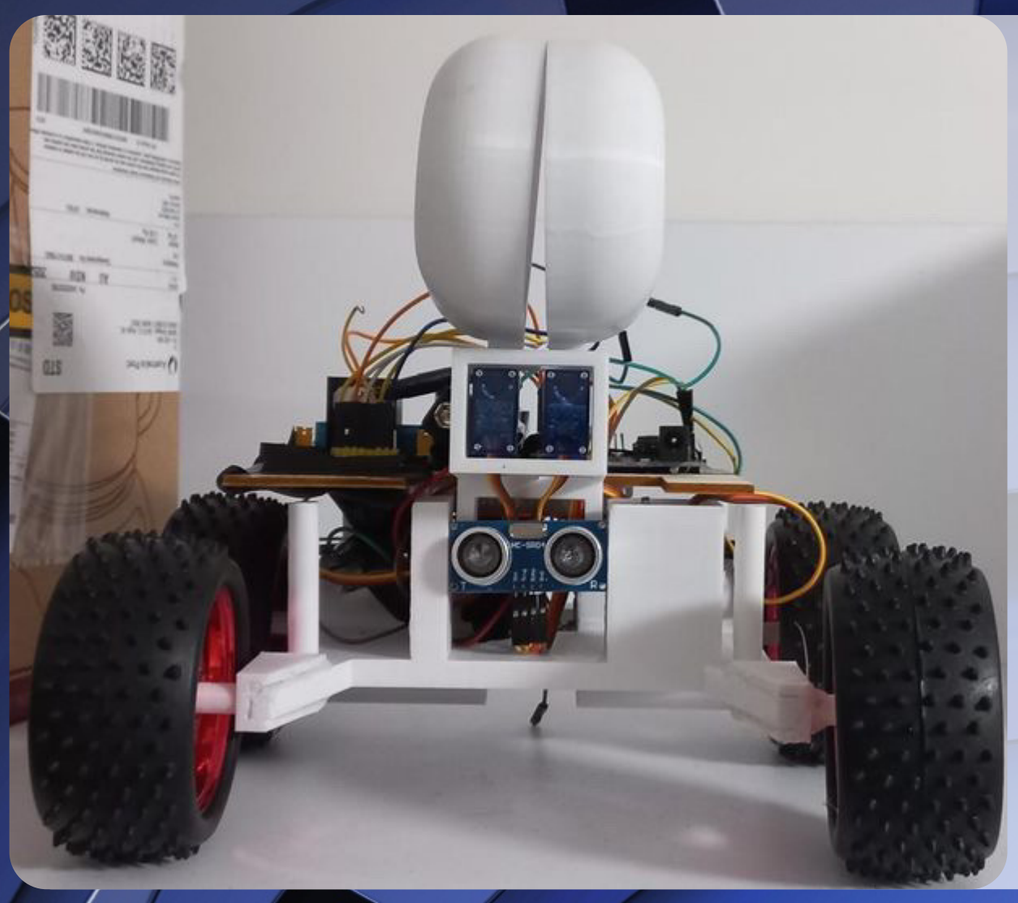


ROBUST DESIGN

Our project showcases robust design principles, ensuring durability and resilience in a rough landscape. Due to its large wheels and strong 3D printed chassis all parts are securely fastened together with screws rather than glue to increase its robustness. The large wheels also provide a barrier between wires and outside objects ensuring that electronics are not affected. Our large motors also mean that it can traverse any terrain nessasary.

ENGINEERING QUALITY

Our robot's weight is around 1 kg, the length, width, height is within the 250mm requirements. Screws and fixing were favoured over glue as this provided the ability for the robot to be disassemble and replaced if there was a problem to go wrong with it without changing the whole robot. This promoted sustainable engineering techniques to avoid unnecessary waste.



INNOVATION

In order to make the robot fit in the standards given and work effectively in multiple terrains, we made lots of effort to solve this problem. For uneven terrains, we implemented large wheels to solve this issue, not only because it is more cost effective compared to climbing mechanisms but it enhances the stability and increases the chance of climbing the stairs. For the robot to avoid obstacles and to notice the victim, we implemented 1 ultrasonic sensor at the front of the robot so it can detect walls an also detect the presence of a ball so that the lifting mechanism can the work. For safeguard the motors are not overwhelmed by the high input voltage, we got voltage regulator to assure the input voltage towards the motor in a satisfactory amount. We also included a gripper mechanism that surrounds the ball making sure that no external factors can have an effect of the "victim" (ball). The lifter mechanism then clears any obsticals lifting it up and providing a smooth journey for the "victim"