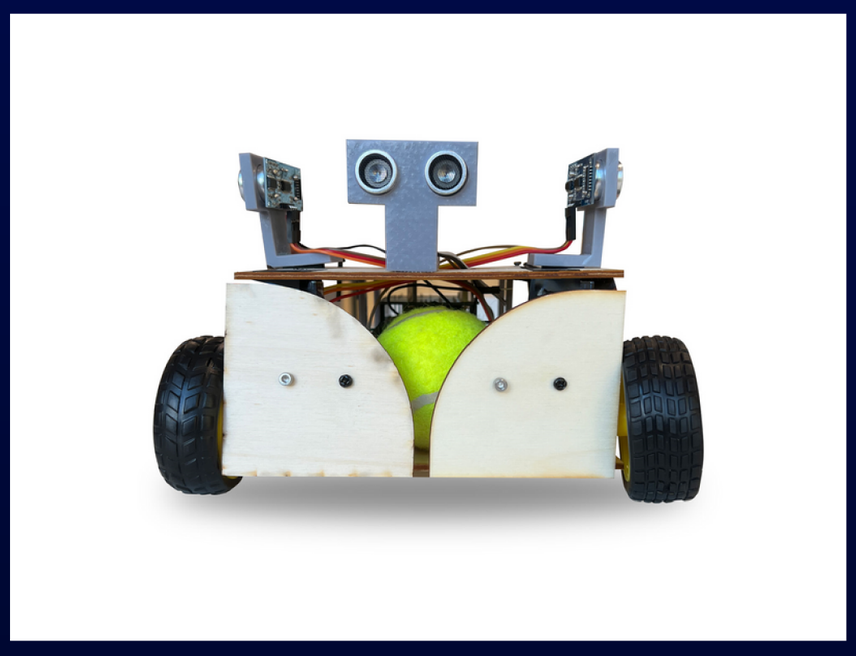
ROBOTS TO THE RESCUE

TEAM 10

X-TRACTOR

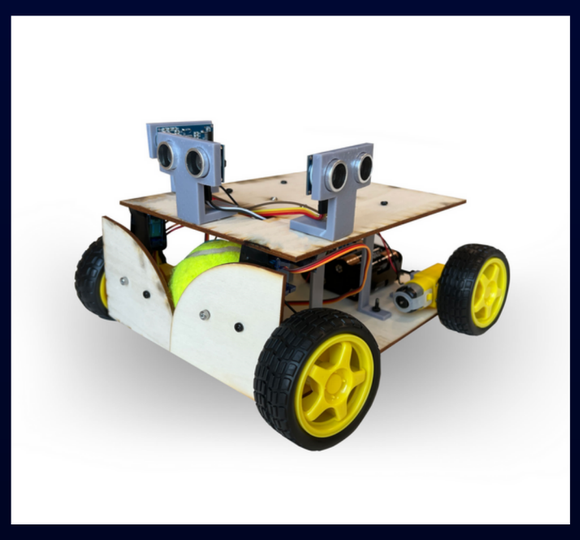
ENGINEERING QUALITY

The X-Tractor combines innovation and practicality to ensure effective performance in demanding search and rescue missions. Using four independently controlled, treaded wheels allows for adaptive mobility in different challenging environments. Integrating several ultrasonic sensor modules and mapping technology offers the user a greater awareness of rescue conditions, preserving the safety of operators by allowing fully cognizant remote control. Cushioned open-and-close door panels provide a gentle mechanism for victim collection, and victim placement inside a protective internal enclosure ensures secure storage.



AESTHETIC APPEAL

The X-Tractor's neon coloured wheels, motors and padded doors are not just functional but also contribute to a distinctive appearance, enhancing visibility in dynamic environments. With concealed wiring to minimise vulnerability, the robot achieves a resilient and easily recognizable aesthetic.



ROBUST BUILD

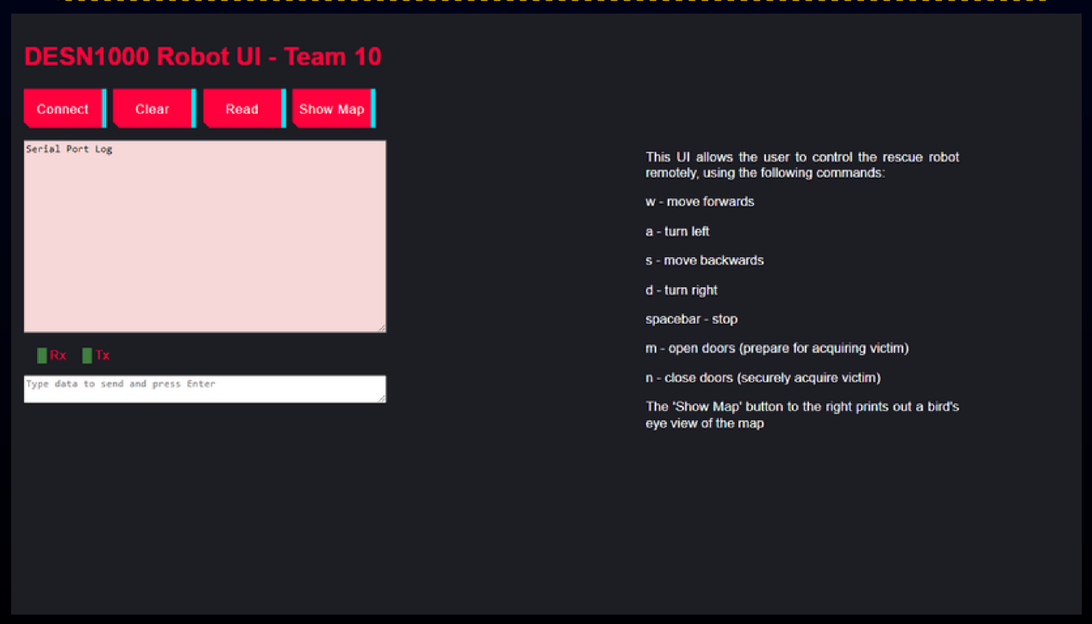
A robust build was achieved through a strategic combination of permanent and adaptable solutions. Bolting resin brackets to the X-Tractor's body allows for a secure and fortified structure, while soldering techniques are employed to enhance the reliability of electrical connections. The materials selected are lightweight, yet still provide support for the harsh environments that the robot will endure.

Deliberately ensuring that the X-Tractor's wiring and power sources are easily replaceable enhances the maintainability of the system. Moreover, the chosen victim collection method minimises moving parts, maximising the durability of the overall system and ensuring a reliable and robust performance in demanding situations.

INNOVATION

The X-Tractor's front panels open for collection once the target has been located, then collect and place the target in a protective internal compartment. This presents an optimised and innovative solution, with the padded enclosure, the reduced tremor and reduced impact of falling debris greatly mitigating chances of victim injury.

The X-Tractor's UI, built using the Chrome Serial API, highlights the team's innovation in a software context. The combined use of HTML, CSS, JavaScript and the Arduino programming language create a streamlined interface that ensures precise control and ease of use, which is of great importance in rescue contexts.



ROBOT UI