

Robots to the Rescue

Team 10



01. Robust Design

- Body**
- The cubed body of the robot shelters all electircal systems, reducing damage in disaster zones.
 - Cubed shape maximises space for circuitry systems.

- Retrieval**
- A claw is utilised to securely and safely grip the victims.
 - The victim is carried with no risk of displacement.

- Motion**
- Tank tread design with elongated tread along longer sides.
 - Tanks configured in curved ellipse shape for traversal over obstacles.

- Location**
- Camera mounted atop the robot for operator's navigation control.
 - Enables visual assessment of surroundings.
 - Integration of ultrasonic sensors for distance measurements.

02. Aesthetic Appeal

- Streamlined wheel design.
- Organised circuit to easily spot errors.
- Organised wiring that is enclosed by the body -> ensures less damage to the circuit as the robot traverses dangerous terrain.
- Modern black and white colour scheme.

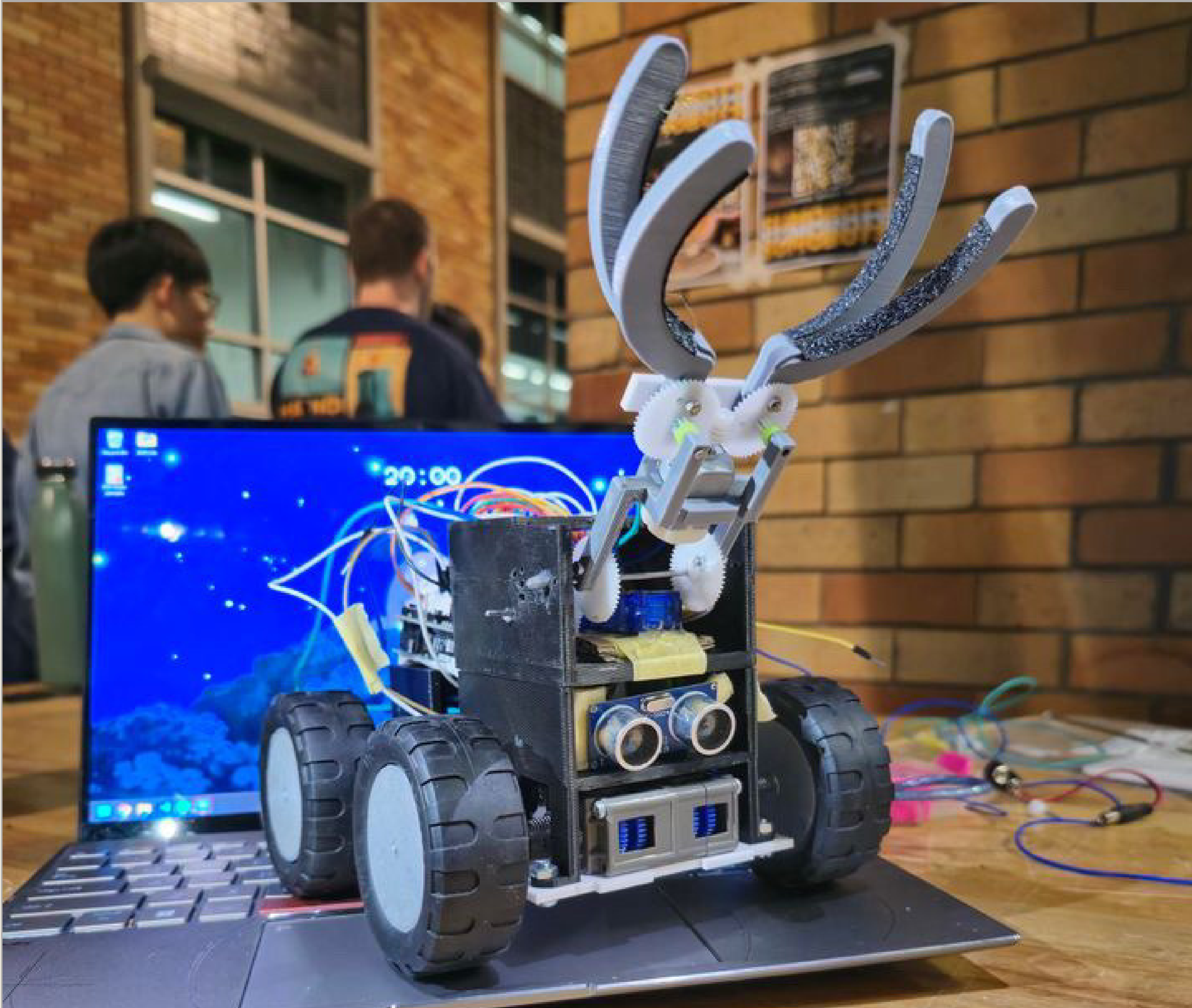
03. Enginerering Quality

- **Material choice -> Durability, Functionality**
- **Environmental Awareness -> Reduce, Reuse**

Material Choice
Rubber treads allow adequate friction between the wheels and ground for the robot to safely traverse stairs.

For the safety of the victim, the claw is insulated with antislip tape ensuring that the victim is secured during movement.

Environmental Awareness
Biodegradable polymer was utilised to make the body in order to reduce environmental detriments in situations where we must abandon the robot.



04. Innovation

Material Innovation
Intoducing a specialised rubber lining to the claw's interior we were able to ensure a secure grip of the victim, enhancing the safety and reliability of rescue missions.

Precision Sensing
Equipped with an ultrasonic sensor aligned with the claw, operators are easily able to navigate towards victims. Furthermore, by precisely measuring the distance to the ball, reliance on visual cues diminished, eliminating errors that may occur in unseen circumstances.

Efficiency and Safety Redefined
Through these innovations, our rescue robot sets a new standard for efficiency and safety in retrieval operations. With enhanced grip and precision sensing, we provide first responders and disaster relief teams with a reliable tool to navigate through challenging environments.