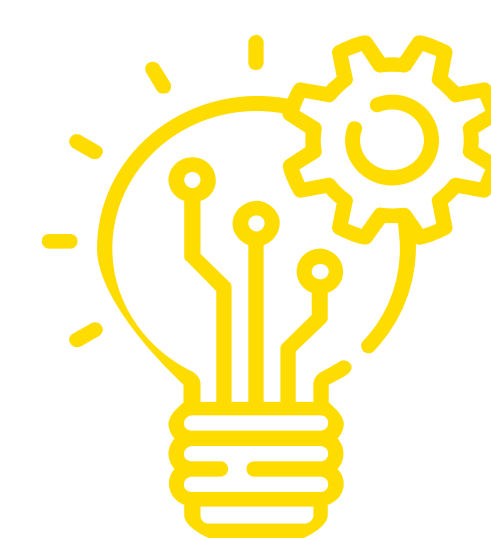


Team 7 (Aidan and The First Years)

James, Aidan, Tam, Lucas, Alex, Bunzein



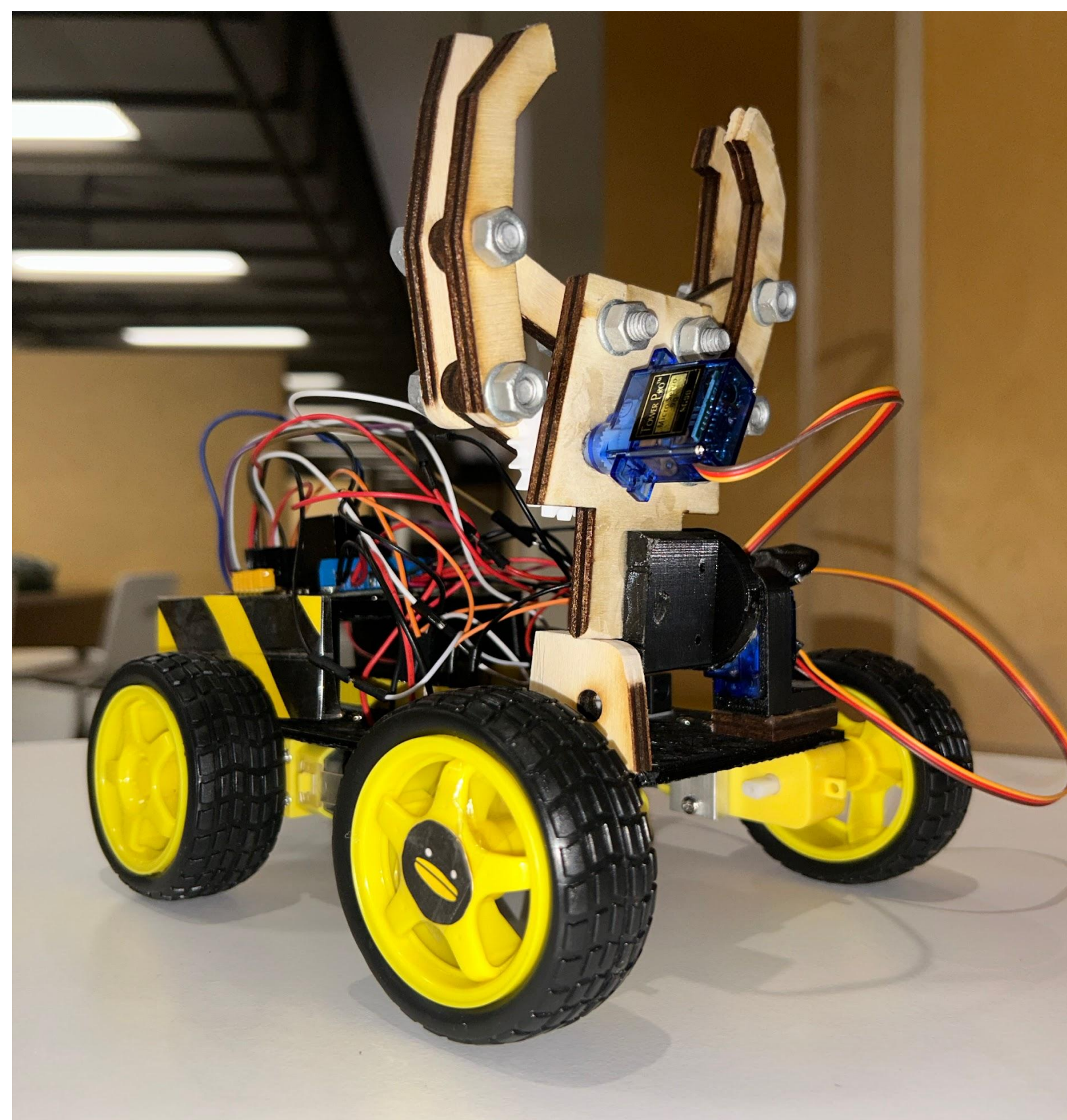
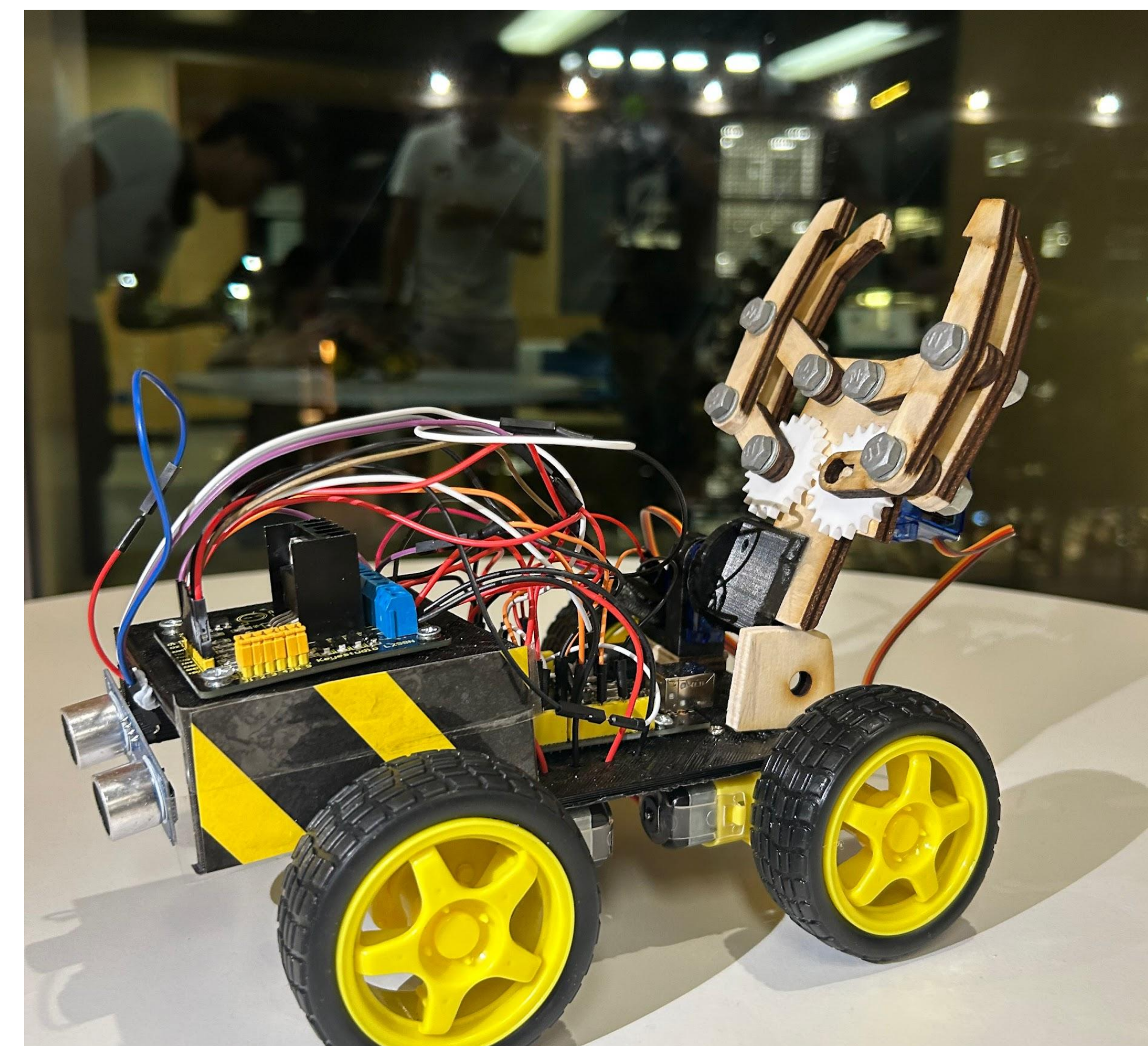
Robust Design

To ensure a robust design in the construction of the robot, we used screws to attach components such as the motor and PCB boards to the chassis. We also used bolts for the construction of the claw, this ensures that the final design is rigid and stable as the robot moves.

Another aspect of our design that ensures robust construction is the use of soldered components.

By soldering components like the wires to the motors ensures electrical connections do not become weak or disconnected as the robot moves, which increases the robustness of the design.

Furthermore, no prototyping equipment such as breadboards are used in the design, instead, all connections are made directly to PCBs which ensure a more secure connection and thus the robust design.



Aesthetic Appeal

For our robot, we chose a black and yellow colour scheme:

- We followed this colour palette with the wheels, the stickers, the microcontrollers as well as the motor driver and logo from gudetama (seen below)
- This coherent design choice makes it aesthetically appealing, resembling the iconic bee.
- Furthermore, this design language is functional as it mimics hazard tapes, which makes it easily identifiable as a rescue robot for the victim, as well as making it easy to differentiate from its environment.



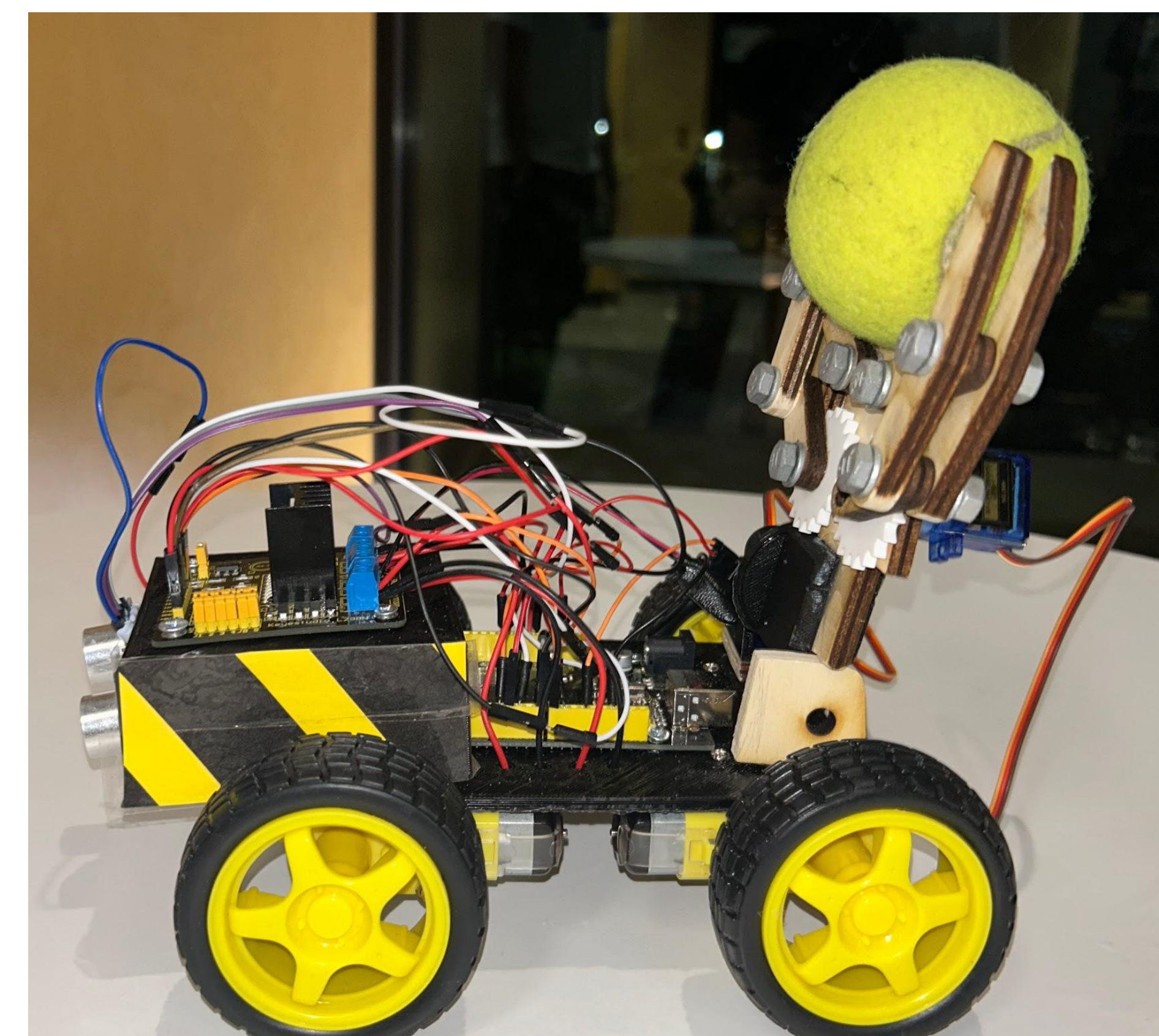
Engineering Quality

To achieve an acceptable level of engineering quality, we had to fit to three given constraints of size, weight and appropriate material use.

Our robot has a diagonal length of exactly 250 mm between the two furthest points, and has a height of 210mm. Therefore, it satisfies the design size constraints.

Our robot also has a weight of 800g which fits within the constraint of being less than 1kg in weight.

Finally, the materials used for our chassis is 3D printed PLA which ensures a lighter build for the robot, and wood is used for the claws for a solid construction.



Innovation

Some aspects of innovation in our design includes the use of graphical user interface. This allows us to display sensor data to the user as they are controlling the robot, which improves over other designs as:

- It is easier to read data from the robot and understand its condition
- Receive data to monitor the robots condition with the addition of sensors in real time
- Control through a GUI, which allows for easier operation

Claw design:

- This unique claw design consists of 2 layers of claws, which allows the ball to be perfectly slotted without the need for an additional motor.

