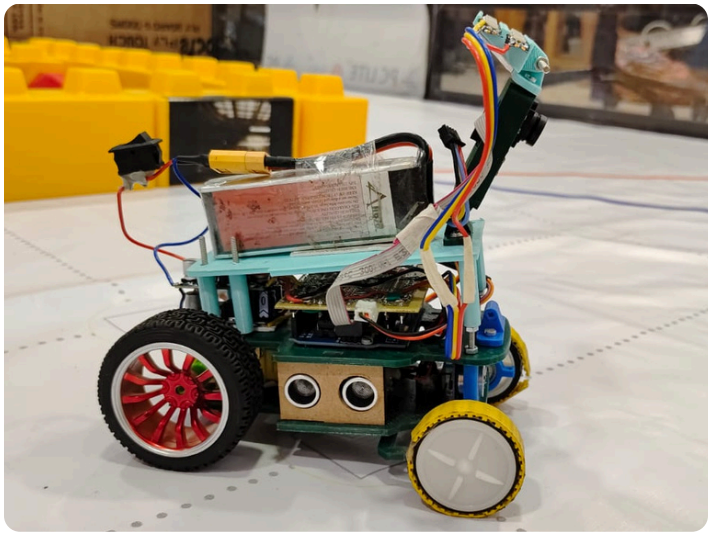
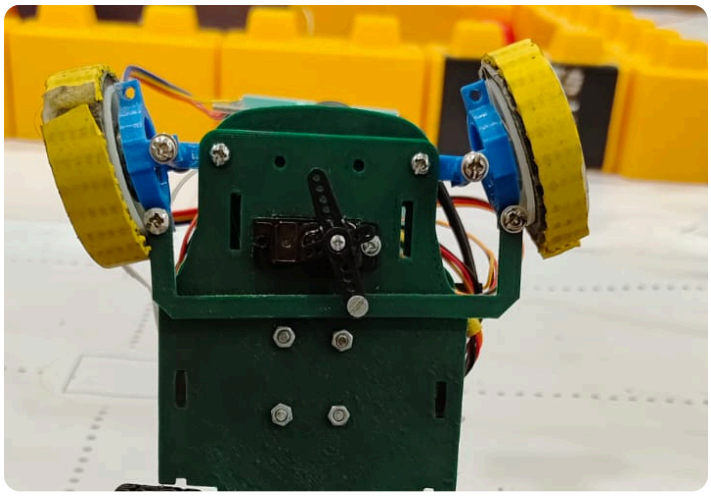
Iteration Manual

Current Iteration:





Name: *Technical Difficulties*

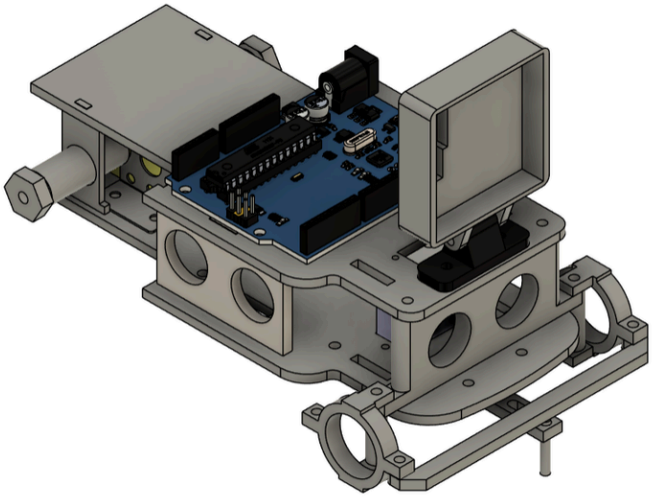
Pros:

- Fits all challenge requirements.
- More LEDs for better Colour Sensing.
- 3rd floor for a bigger battery, Fixed Power Distribution.
- New Steering, Better torque, and turn range.
- Better Spacers for Rigid Linking.
- Better Front Wheels for improved traction.
- Adaptable to a Differential System (Internationals).

Cons:

- Heavy.
- Not easily openable.

Iteration 1:



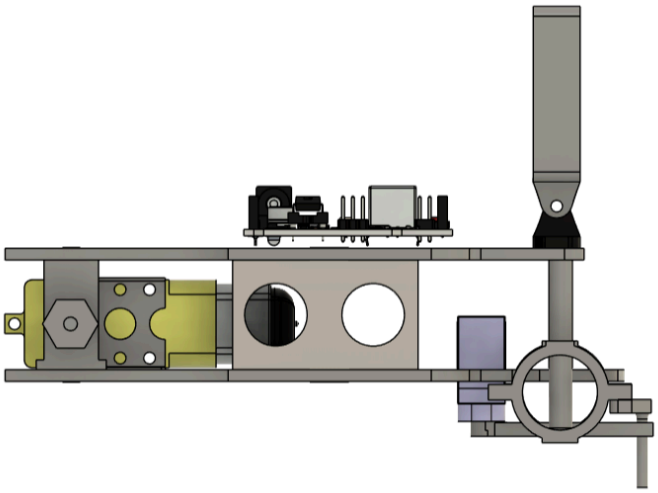
Name: *Base Bot*

Pros:

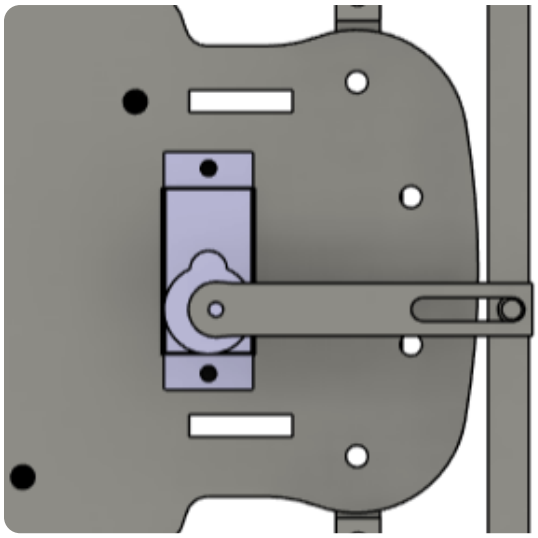
- Light.
- Easily openable.
- Can fulfill basic challenge requirements.

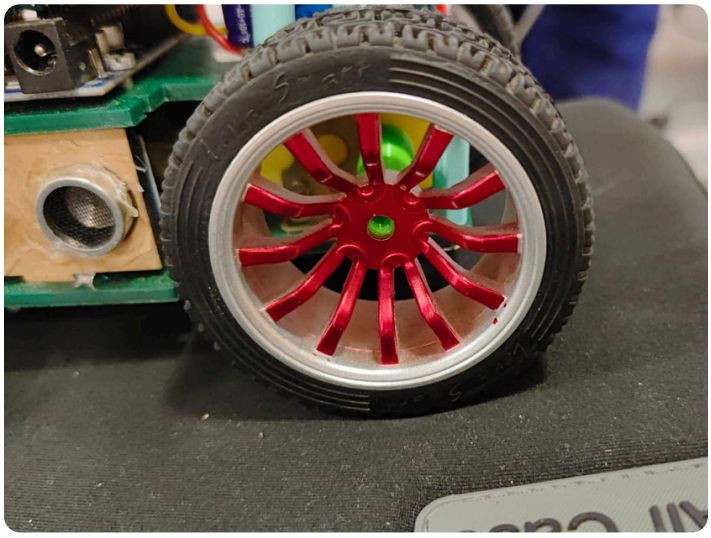
Cons:

- Weak Links, the Bottom Plate often fell out.
- Low torque, due to SG90.
- Big turns, due to bad Steering.
- Bad Power Distribution.
- Not a lot of Space to place Pixy.
- Bad Wheel traction.



Iteration 2:





Name: *Beetle*

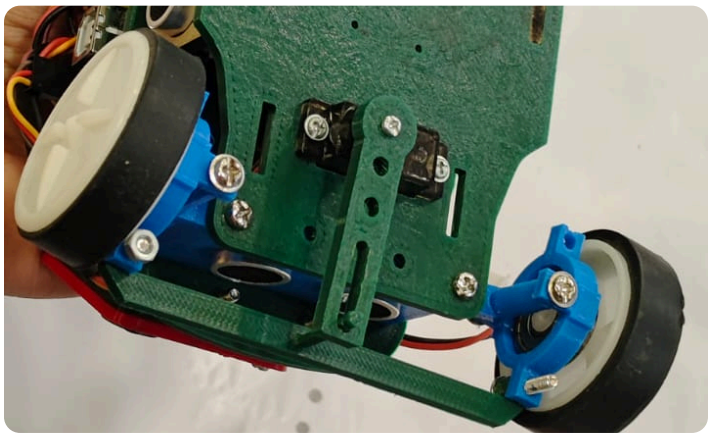
Pros:

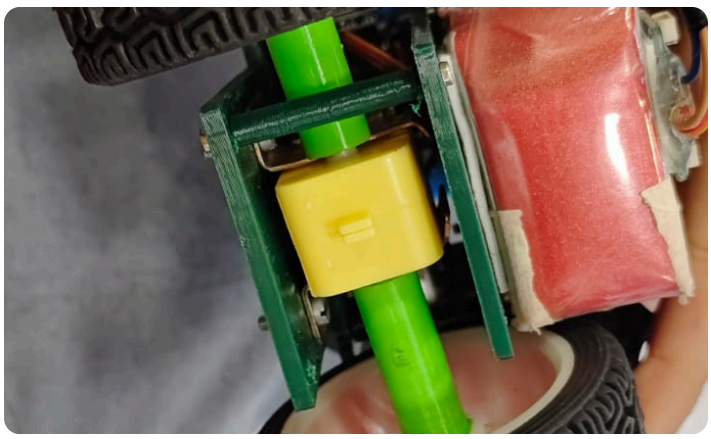
- Swapped plates allowed a place for the Pixy and the Steering.
- Improved Steering turn range.
- New Back Wheels for better traction.
- Better torque.
- No Coupler Holders for unrestricted Wheel movements.

Cons:

- Weak Links, the Bottom Plate often fell out.
- Bad Power Distribution.
- Bad traction of Front Wheels.
- Unsteady Back Wheels.

Iteration 3:





Name: *Flipp*

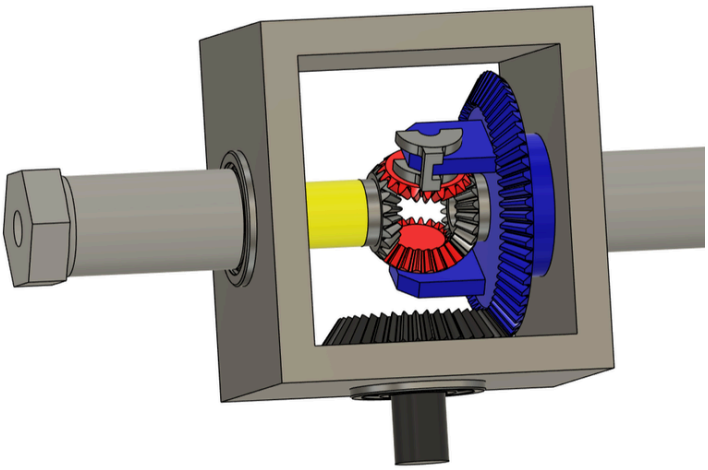
Pros:

- LED for improved Colour Sensing.
- Better, more mobile steering, Along with MG90 servo.
- Spacers for better Linking.
- New Couplers to reduce Wheel wobble.

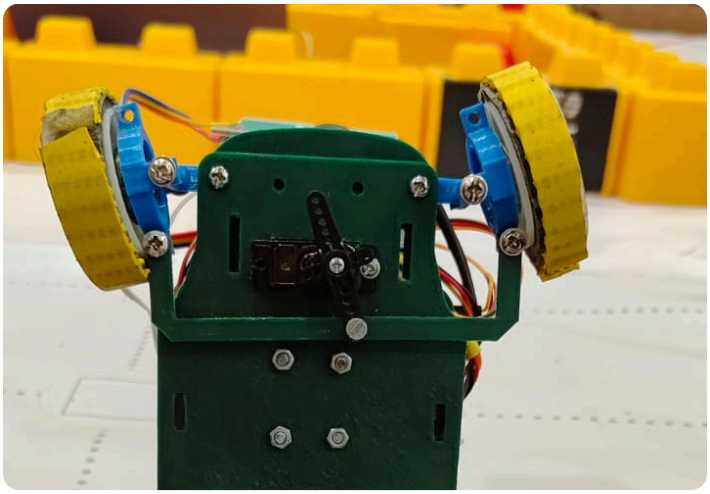
Cons:

- Bad Power Distribution.
- Bad Front Wheel traction.
- Not easily openable.

Singular Iterations



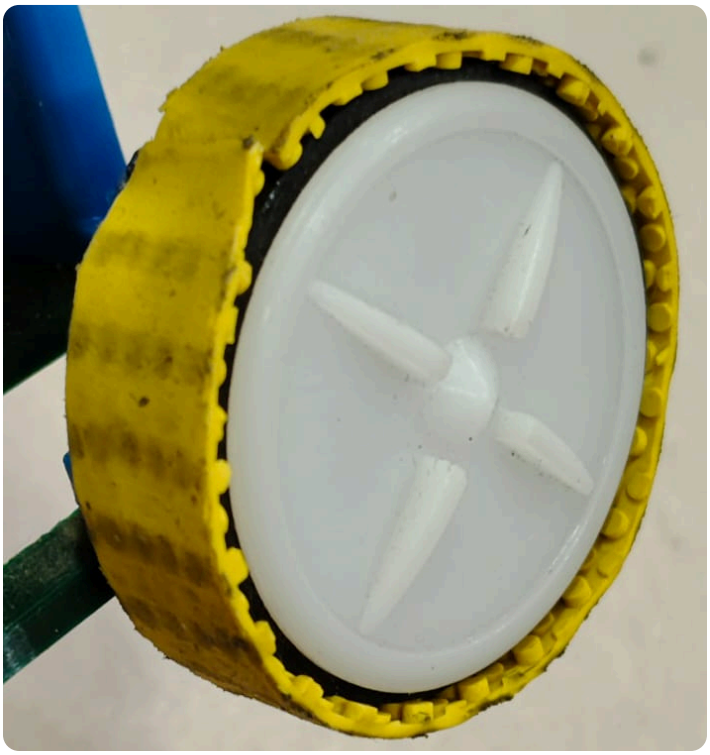
Saved for Internationals, this *Differential System* is compatible with our current robot and has both *single* and *dual-shaft* capabilities.



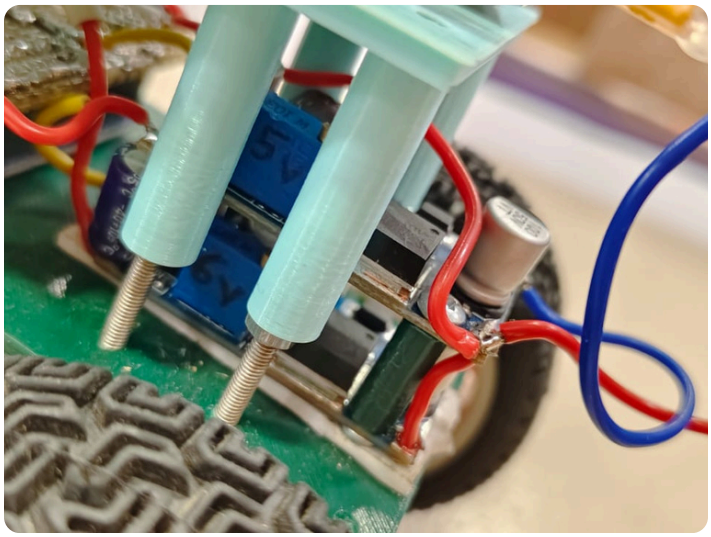
The current Steering mechanism uses an *MG90 servo* for higher torque and stronger metal gears the mechanism itself allows for better turns and decreases stress on the servo.

These couplers were first used when we swapped our *Drive Wheels* (back wheels) and function as an extended shaft from the *BO motor* to the wheel.

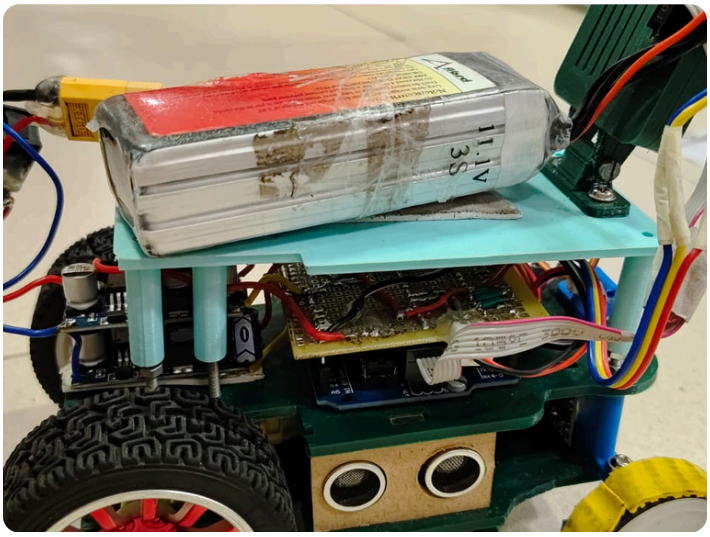
The *Hexagonal spacer,* an improved version of the *normal spacer,* is used to hold the top and bottom plates together, ensuring a Rigid linking.



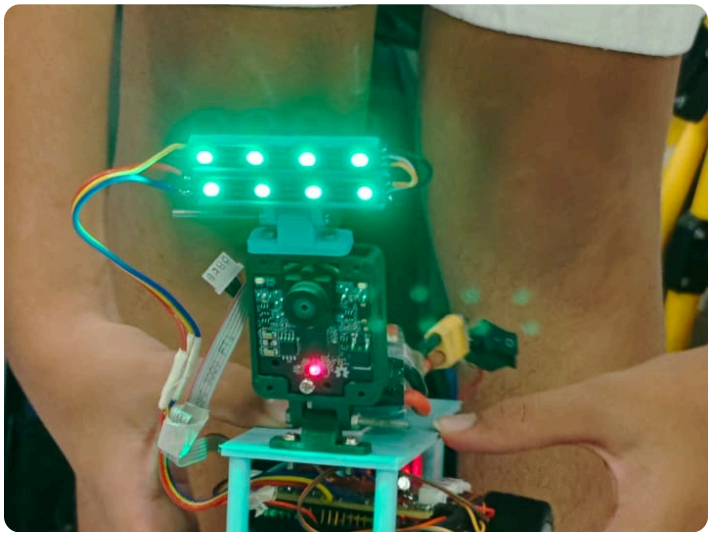
The *Grip tape* is used to improve the traction of the *Front Wheel*.



These *Buck Converters,* specifically the *LM2596* are used in Power Distribution to split 11.1v into 5v and 6v instead of providing direct voltage like previous iterations.



The *Third floor* is used as extra space for an 11.1v battery, allowing for more flexibility in Power Distribution.



The *Lamp* and *Pixy LED* are used to improve colour sensing ability and also to indicate sensor readings respectively.