

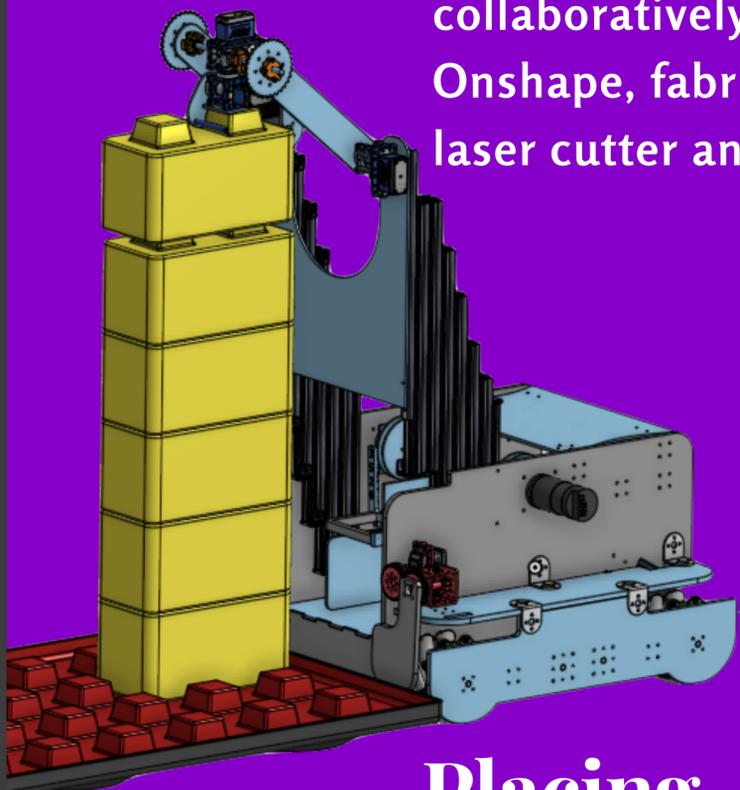
Our Robot : L3-37

Marlbots 3526

Autonomous

In our autonomous, we use a webcam with TensorFlow to detect the Skystones at the beginning of the match. We also use the encoders on our wheel motors as well as the built in gyro in the Control Hub to navigate accurately around the field.

6 Modules created collaboratively using Onshape, fabricated with a laser cutter and 3D printer.

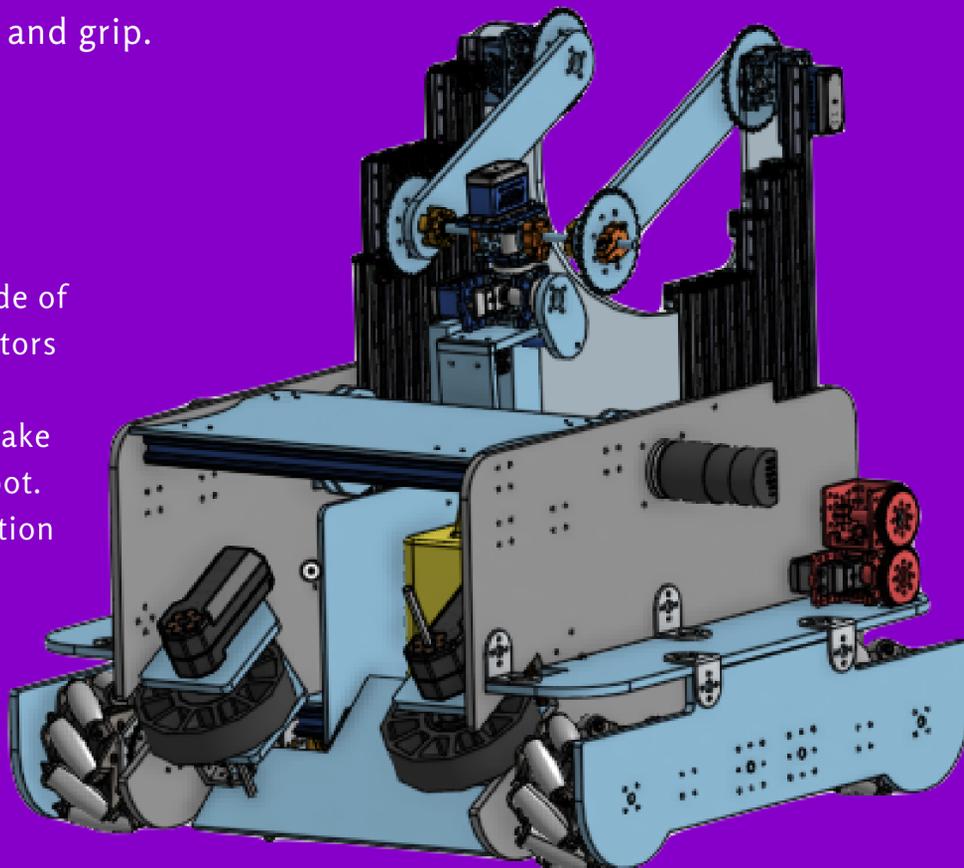


Placing

The placing is done by a 2 sided 1 bar linkage using stationary sprockets and plastic chains. It is powered by servos, which enable it to pivot the block 360 degrees while keeping it in a fixed position by a sprocket rotating on an axle. There are 2 servos on the stone holding side: one grips the stone and one pivots the stone. We also added resistance bands to the placing mechanism for traction and grip.

Intake

Our intake system consists of two compliant wheels, one on either side of the robot. We utilized REV Hex motors in order to power the compliant wheels, which rotate inwards to intake the stones into the body of our robot. The compliant wheels provide traction for picking up the stone.

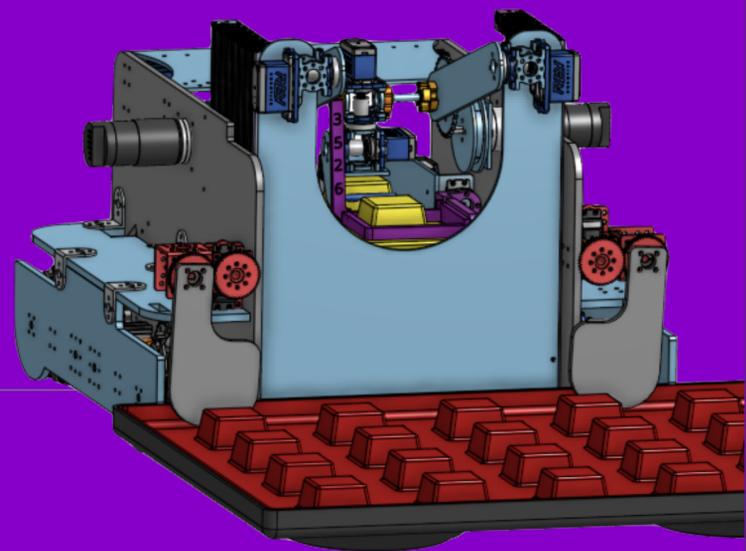


Drive Train

Our drivetrain is a 4 wheel mecanum drivetrain. We utilized mecanum wheels in order to increase maneuverability on the field. We used chains and sprockets with 20:1 motors to make it easier for us to manipulate the gear ratio while also being able to go fast. .

Capstone

Our capstone completely fabricated by our 3D printer. It consists of a cut out square that fits around the nub of the block and a spring loaded flag to ensure it meets the minimum size requirement when deployed.



Lift

The lift is made using linear ultra slides from REV. The ultra slides enable us to lift smoother with the help of ball bearings. We made modifications to each slide in order to prevent the bearing from falling out.

Foundation Movers

The foundation movers consist of two laser cut panels connected to servo blocks on the inner panels. The panels rotate to allow us to hook onto and off of the foundation.