# Technical Notebook

## Evos

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# Event Log

4/18/23

Xander, Connor, Tim

We met at the library to discuss ideas of what we wanted to do. We took off all the extra parts that were unnecessary and left the wheels and wheel motors and the core of the robot. We then decided we just wanted to add a sled/ramp at the front of our robot that will flip up when it gets close to another robot. Xander built the mechanism that flips the ramp up and down. Connor built the ramp part. Tim took off anything unneeded from the robot and grouped up what sensors we will need and were they need to be attached.

4/20/23

Connor and Tim

Meeting at the library to further build the robot and make sure the core is secure. Connor put the flipping mechanism and ramp together and then attached it to the robot. Tim and Connor reinforced the shaky and unsupported core of the robot and also confirmed were each sensor was to be put.

4/21/23

Tim

Meeting at the library to finish putting all the sensors on. Attached the ultrasonic sensor and one color sensor to the front. Attached 1 color sensor to the back. Tried to put the color sensor under the ramp to readings quick but was unable to find a place to attach the sensor and also be able to attach the wire. Reinforced the ramp mechanism by adding more connectors for the part between the flipping mechanism and the ramp. Added 2 bars that went across the top of the ramp to ensure nothing fell onto our robot when flipping.

4/21/23

Xander

Showing up after Tim to write the code for the robot. Started by initializing every motor and sensor and then ensured that they worked. Started by writing code to get the ramp to flip up to an angle of 50 degrees, which was decided by testing certain degrees. Then added code for the front and rear color sensors to detect if the color was white or black. Made the robot reverse 100mm and then turn 180 degrees if it saw white on the front sensor. Made the robot speed up to a speed of 250 if the rear sensor sensed white.

Then added code to get constant reading from the ultrasonic sensor to see how far away something was in front of it. After doing some testing, decided that if the ultrasonic sensor saw something closer than 300mm it would slightly speed up. The intention was that if it saw a robot nearby it would start to speed up towards it. After more testing, it was decided that when the ultrasonic sensor sees something less than 120mm away, the object is close enough to be on the ramp and the robot should go to max speed and also lift up the ramp.

What was originally tried was a bunch of if and elif statements, but a problem that was ran into was that the robot was slow to react. It ended up having an overriding issue which was fixed by changing the elif statements to just separate if statements.

Another issue that was had was the front color sensor wouldn’t read quick enough when the robot approached the edge by some angle because the sensor was on the outside edge. Tried to move the sensor to the middle but was unable to find a location. So just decided to leave it where it was.

Had another issue where the robot was going to fast to read the color sensor and react quick enough before it ran of the edge so had to turn down the speed.

Had an issue where the robot would just leave the ramp up after sensing something close, so made it so the ramp would fall down at the begging of the while loop.