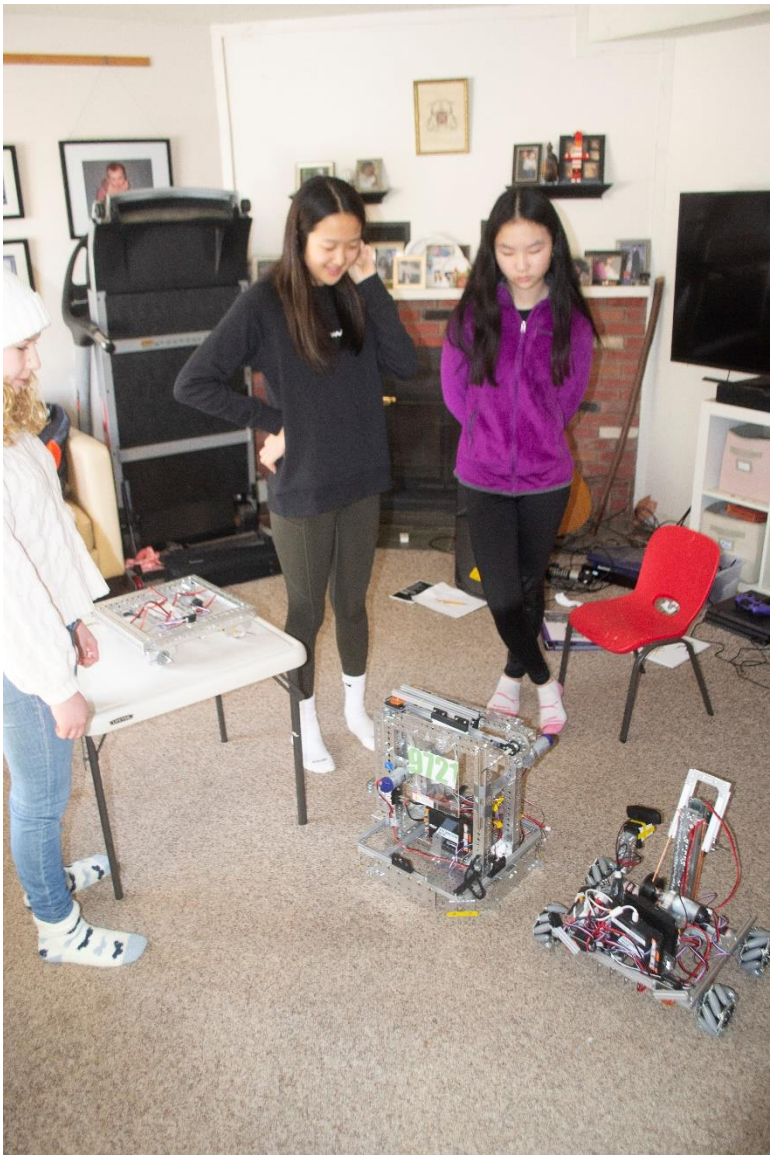
The team introduced themselves and learned a little about first.

Then, the team learned about the differences between tetrix and rev systems. They experimented building some simple tetrix systems and then explored different robot frames from team #9721.

The team discussed how the frame symmetry can make it easier to control the robot and balance the weight of the robot. The team decided to stick with the template frame.



After a few minutes of experimental, the team learned about how to build an omni wheel caster. The team learned about how the axle hub key and the axle work together with the tetrix u channel, bushings and axle collars.

The team then learned how to make a motor mount. They learned how the motors are connect to the mount and how the mount is connected to the frame.

The team then learned about different types of wheels. They experimented with tetrix wheels, omni wheels, rev regular wheels, rev omni wheels, mecanum wheels and off-road wheels. The girls choose the regular tetrix wheels because they were the same height as the omni wheels, which would keep the robot better balanced.

The next step was to mount the electronics. Team 9721 explained that they like to mount a tetrix channel to the bottom of the robot so that hub attaches to the robot and the battery and phone can fit inside the channel. The girls used this model for the electronics but they discovered that the sequence of adding things matters. When the tetrix channel was mounted to the frame, they could not reach the REV screws to fasten the hub to the channel. They took off the channel, mounted the hub, they re-attached the channel to the robot.

Team #9721 then demonstrated how to label the frame of the robot and the wires to help keep everything clear. The girls then labeled the robot and labeled the wires for each motor.

Then, the team added the switch and the battery so that they could create a configuration file for the robot.

Members of team 9721 wrote a basic telOp mode for the team so that they could see how to arrange the if/else statements and map the controls of the movement to the game pad. The girls preferred forward to be the dpad_up, backward to be dpad_down, dpad_right to turn right and dpad_left to turn left.

9721

DAWN

162915

162915

Rookie Workshop Videos

Castor Wheel Demo Video

Wheel Placement

Asymmetrical Motor Placement

Turning Radios and Wheel Placement

Motor Positions and Turning

Long Versus Small Screws P1

Long Versus Small Screws P2

Mounting Omni Castors

Mapping Motors Gamepad

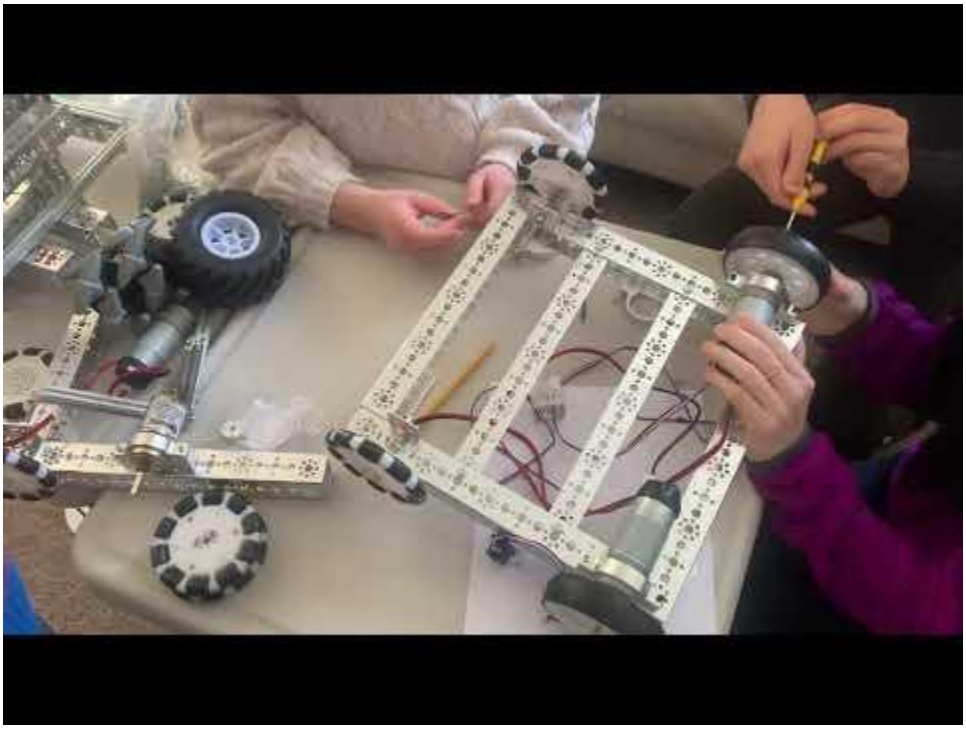
Wheel Varieties P1

Wheel Varieties P2

Wheel Mount Demo

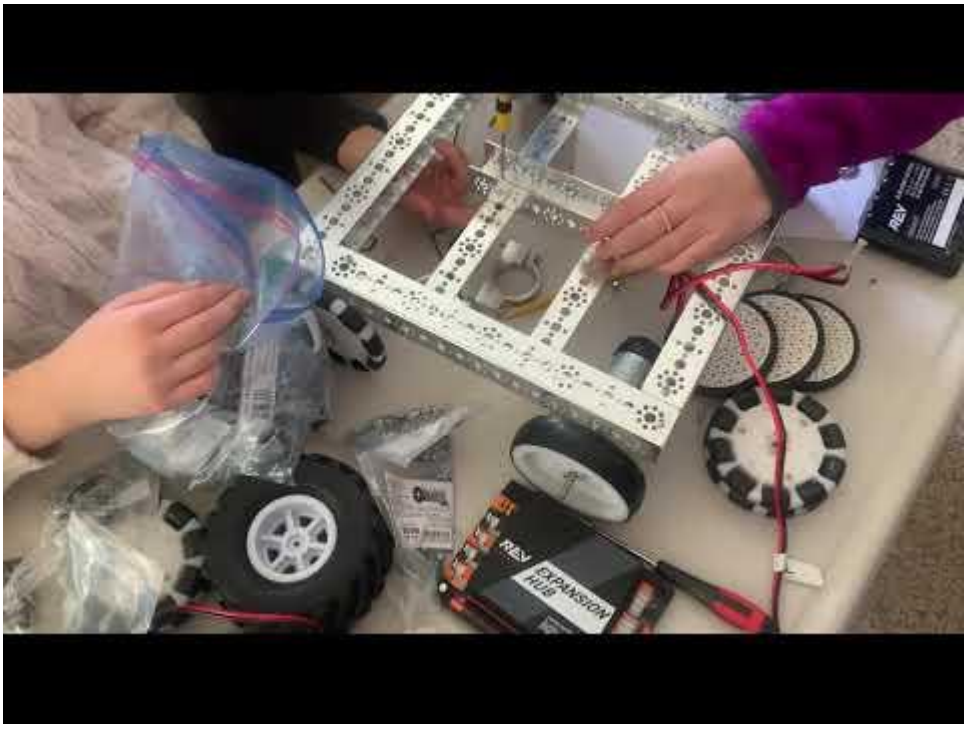
Wheel Mount Installation P1

Wheel Mount Installation P2



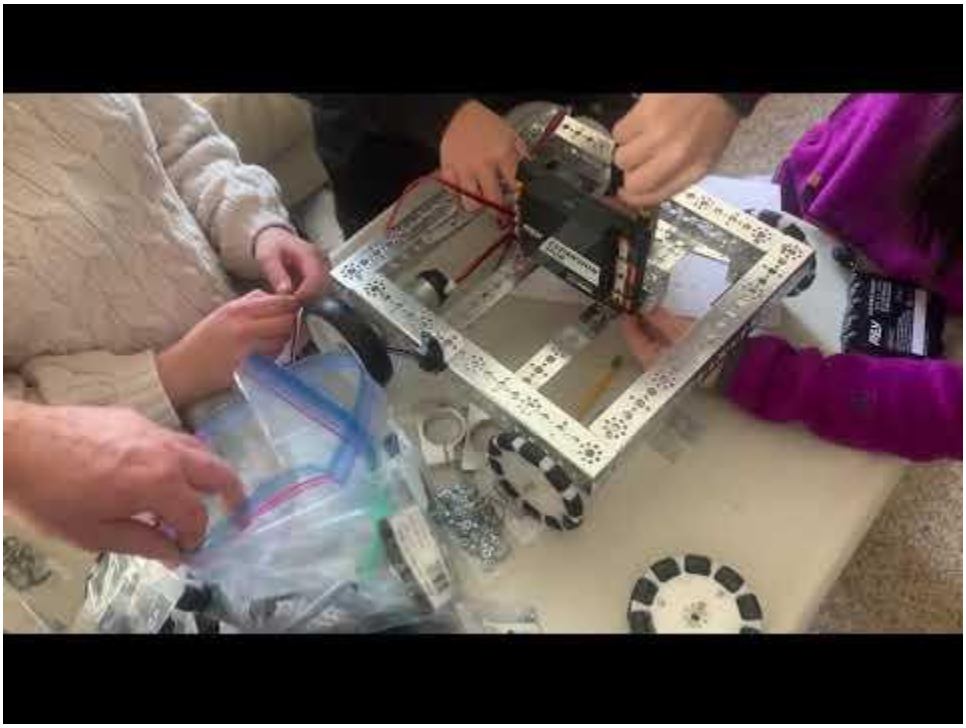
Electronics Mount Demo

Electronics Mount Installation P1



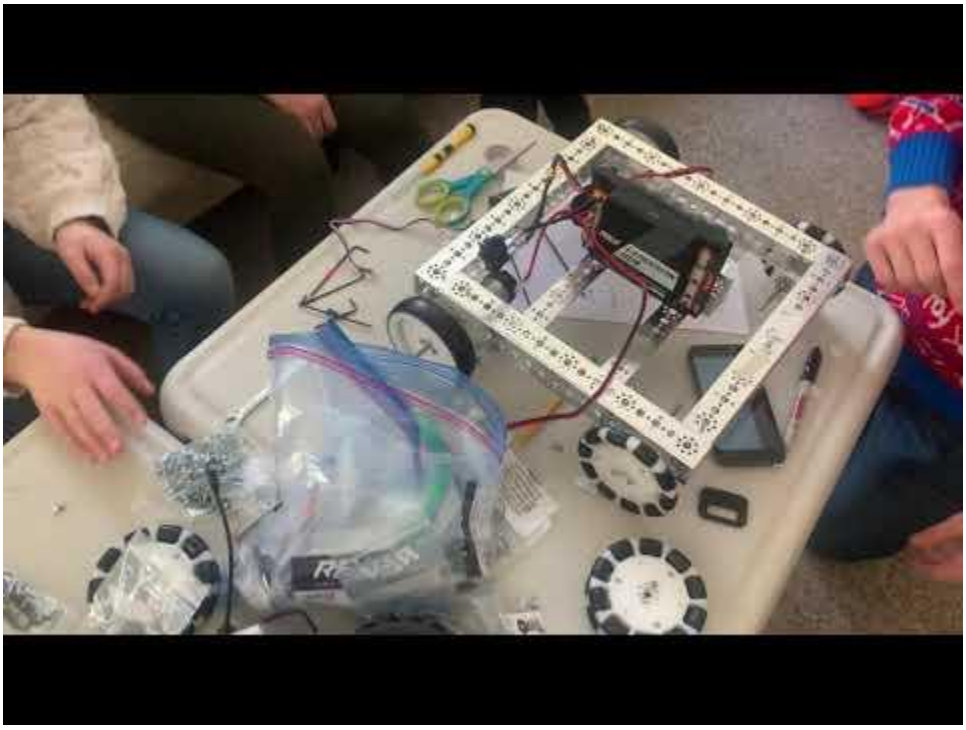
Electronics Mount Installation P2

Electronics Mount Installation P3



Switch Demo

Wire Management



Configuration

Faulty OTG

Test Drive Demo

Sage Drive 1

Kayla Drive 1

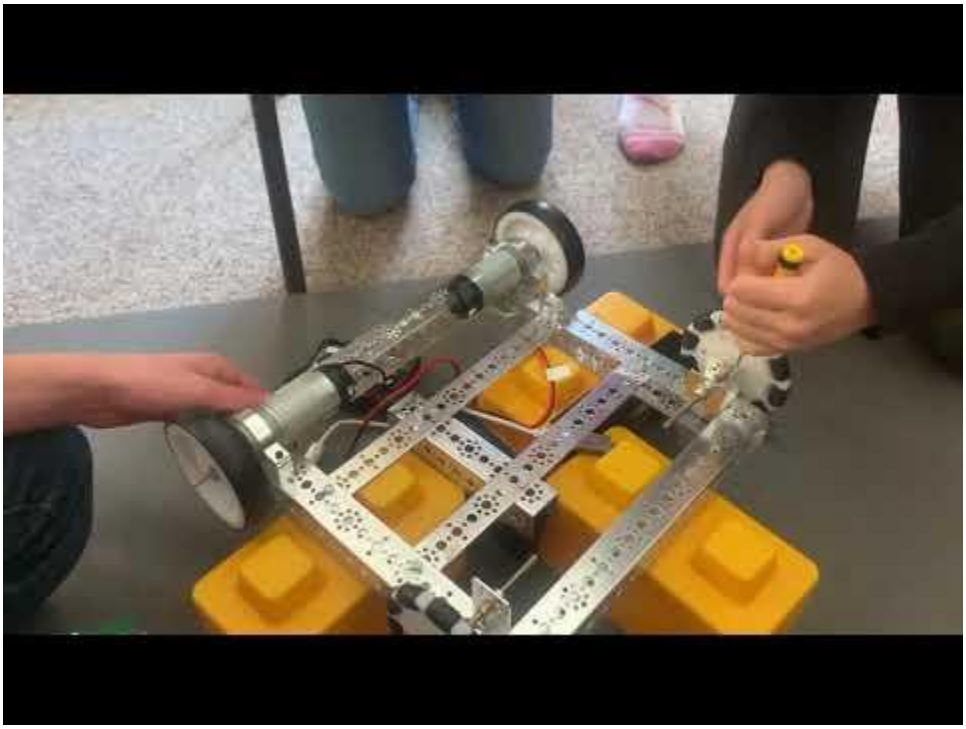
Emma Drive 1

Programming Download

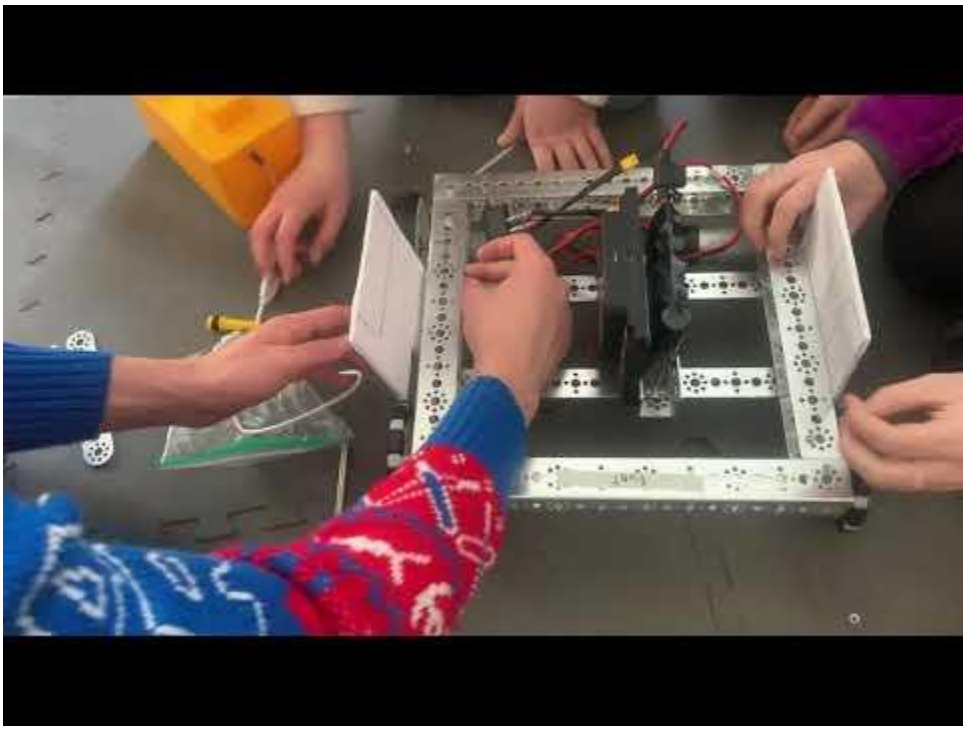
Sage Drive 2

Kayla Drive 2

Emma Drive 2

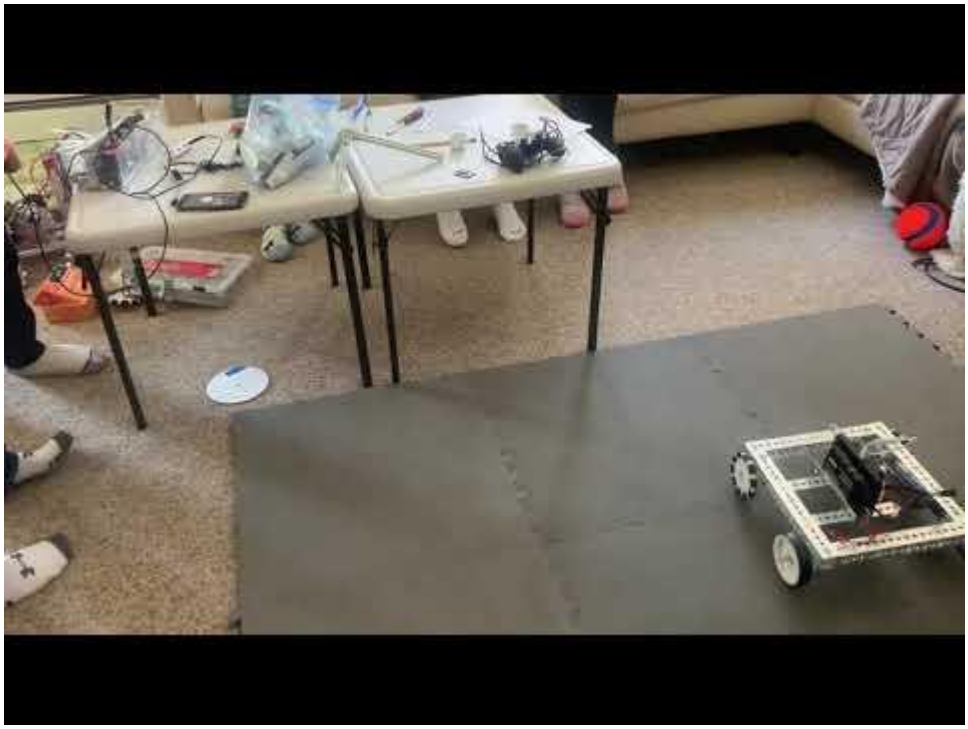


Team Numbers



Configuration

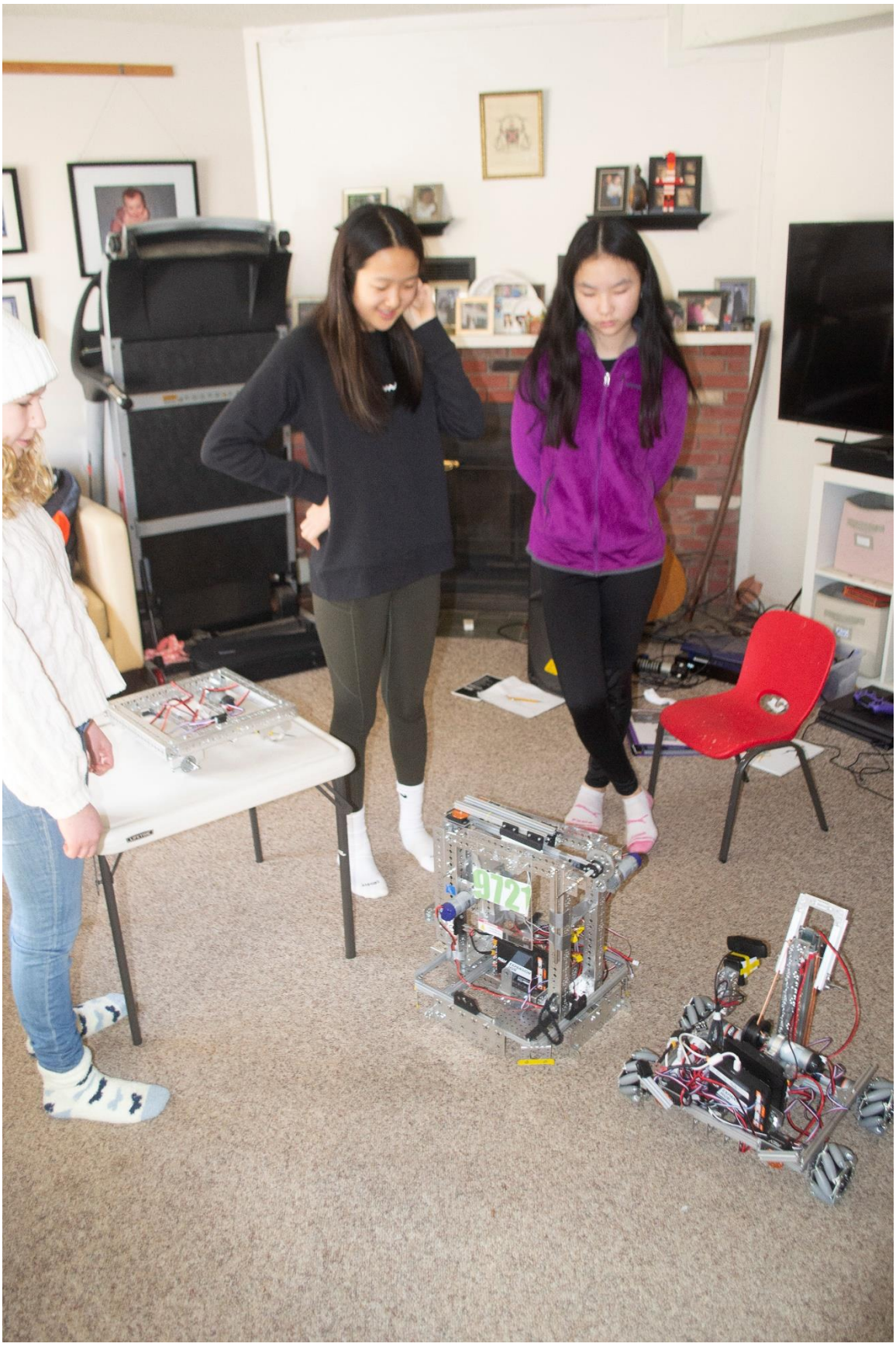
TeleOp Demo



Kayla Drive

Emma Drive

Sage Drive


9121

After the girls left, the boys ran some testing of both robots. During the first run, they determined that the girls robot would need some additional grabbers in the front of the robot. They also felt that they should explore a “turbo” for their own robot. They developed a pathway where the girls robot pushes blocks for the boys to assemble. The team also discovered that there might not be enough time to both cap and move the foundation and park.

The team made some modifications to the both robots. Andrew added bumpers to the girls robot. The boys robot gained a turbo booster. During these trials, they discovered that the end cap was difficult for the girls robot to move. Andrew added a cardboard bumper to make the end cap easier to push.

The team then ran several different versions of end game algorithms. They decided that moving the foundation and parking would be key so they wanted to do this, at a minimum. They also wanted to try to cap the stack but they found that it took time to get it into position and they were not sure they would have the time. They considered several alternatives such as stacking three stones instead of 4 and using the time to place the end cap.