Requirements

October 24, 2022

Mechanical

1. Shall have a method of navigating through the field
2. Shall have at least one pusher/puller hereby referred to as a pusher for moving blocks around the field
3. Shall fit in a 8in by 8in box at start of play and 18in cylinder during all of play
4. Shall have cad files made for each component
5. Shall be able to move each pusher with at least a minimum of x m/s in any direction
6. Shall have a weight that is less than 5 lbs

Electrical

1. Shall be able to sense items in front of the robot
2. Shall be able to detect which side of the field each pusher is on
3. Shall be able to detect the state of the pusher
4. Shall be able to detect the velocity or absolute position of all wheels
5. Shall have a motor controller to regulate current direction and amount sent to each actuator
6. Shall have electrical designs for circuit

Software

1. Shall be able to interrupt when a pusher has entered the other side of field
2. Shall have a looping algorithm to move blocks to either side of the field
3. Shall be able to move the the robot autonomously across the field
4. Shall be able to choose which side of the field blocks should be moved to
5. Shall use a robotic simulation environment to test the code
6. Shall detect current state of pusher at initialization and move to a designated initialization state for pusher Robot
7. shall have a designated initialization state
8. Shall use github to version control the software

Safety and logistics

1. Shall have a hard reset button that can be easily reached to turn off all components of the robot
2. Shall have a software reset button that returns the robot to initialization state
3. Shall have a active budget of 40 dollars and fabrication budget of 300 dollars