Treads

During the first implementation of the treads, it was noticed that the treads were loose. Since the wheels were no spanning the entire length of the tread, they weren’t working to the best of their ability. The loose treads were evident when the robot tried to complete the square navigation. Visually, it was obvious the robot was not going in a straight line at all times.

During the second implementation of the treads, the front wheel was lifted lightly in order to slightly secure the treads. Having the front wheel lifted also helped with the traction as it made it easier for the robot to travel through the bumps. At the end of the day, the robot still had trouble in the navigation portion. The little errors compiled together at the end of the navigation.

Regular Wheels

On the first design of the robot with regular wheels, a single marble was placed to carry the weight of the back end. Two wheels were placed on each motor to increase traction. While the robot seemed to complete the square navigation better than the treads, it had multiple issues crossing the bridge. The single marble at the back end changed the direction of the robot extensively. At the end, the robot wasn’t able to plow through the bumps on the bridge.

On the second design, two marbles were placed on the back. A marble was placed on each corner of the back end hoping the robot would be able to travel straight through the bumps better. While the robot traveled better than the first design, it still encountered complications when traveling though the bumps. The robot barely made it passed the bumps on the bridge. This concluded that the marbles were not a viable option to support the back end of the robot.

On the third design, marbles were completely excluded from the design. The marble was placed with a single wheel at the back end that was not controlled by a motor. During the testing on the bridge, the robot perfectly passed the bridge. It didn’t encounter any issues as it traveled relatively straight through the bumps and completed the bridge with ease. Navigation on this robot was not trialed as the back end wheel was stabilized (was not a lazy wheel).

Conclusion

After taking everything into consideration, it was finalized that the regular wheels will be over the treads. Even though the treads traveled through the bumps more efficiently, the regular wheels were not far behind. Considering navigation will be a huge factor in completing the tasks, it is important to use the hardware that best perfects the navigation with ease.

Next Week

Plans for next week is to implement the lazy wheel on the robot back end in order to complete the navigation tests and completely finalize the method of transportation for the robot.