

Robots have become a large part of the modern world and have been used to navigate through complex environments, with various optimal speeds and pathing requirements. To improve this, we have developed an AI-based predictive pathing optimizer that takes in data regarding the requested route and implements optimal speeds. The algorithm will compare time lost to the time gained by moving at a higher velocity. This has been developed by implementing continual circular patterns onto a mobile robot, which allows for rapid analysis of both the accuracy and the speed of the cycle. This optimization is proposed to increase the navigational efficiency in terms of time and energy of robots navigating through semi-predictable environments. This technique has allowed us to substantially increase the speed and consistency of our robot's navigation allowing for faster more efficient mobility. We plan to further develop our research towards multi-robot pathing with object placement in the path both known and unknown to the robot.