

## Unique Object Following Robot

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In rapidly moving robotic world, leader following robots have been researched and developed by many researchers worldwide, because it is advantageous. These leader following robots make a good interaction between a leader and a mobile robot. This interaction was made with the help of several technologies by many researchers. Those techniques are ultrasonic wave transmitting and receiving technology, radio frequency identification technology, Infrared waves transmitting and receiving technology, using stereo camera, KINECT module, laser range finder technology, and image processing technology. In this research image processing technology was used to track and follow a leader uniquely. Through image processing technology, a unique object in the leader's body is tracked and according to the tracking, the leader is followed. The image processing task is processed by camera module and with the Raspberry Pi board, the Raspbian operating system was installed and open cv program was installed to the raspberry pi board to carry out the image processing part. The Arduino board was serially connected with the Raspberry Pi board. According to the image processing information, the Arduino board is used to control the motors of the robot and through that, the mobile robot is able to follow the leader in a straight line and also to follow the left-right movement of the leader. The Algorithm used was found in the OpenCV library and the language used to program was Python. Low lighting conditions and less processing power affect the accuracy of the robot. The motors should have the power to gain sudden acceleration and to maintain the speed to follow the leader if leader walks fast.

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