VEERSHIVA COLLEGE,BALLARI

INTRODUCTION

Obstacle avoidance robots are designed to navigate in unknown environments by avoiding collisions. They sense obstacles in the path, avoid them, and resume running. Popular methods include wall following, edge detection, line following, and edge detection. However, edge detection requires the robot to stop in front of an obstacle for accurate measurements. Collision avoidance algorithms range from primitive to sophisticated, involving detection and quantitative measurements of obstacles. The robot's steering algorithm ensures it doesn't stop in front of an obstacle during navigation. An ultrasonic sensor detects obstacles ahead and sends a command to the micro-controller. Infrared sensors detect object distance using infrared radiation, but they have limitations such as poor tolerance to light reflections, no object recognition at dead zones, inaccurate detection results with transparent or bright colors, and decreased sensing reliability with moisture and humidity. Additionally, IR sensors can sense IR radiation from sunlight, causing errors at output. Analog IR sensors may also cause signal losses at the amplifier circuit. PIR motion sensors require long calibration times and are sensitive to thermal radiation.

LITERAL SURVEY

Obstacle avoidance robots are designed to navigate in unknown environments by avoiding collisions. They sense obstacles, avoid them, and resume running. Popular methods include wall-following, edge detection, line following, and edge detection. Collision avoidance algorithms range from primitive to sophisticated, involving detection and quantitative measurements of obstacles. The robot's steering algorithm ensures it doesn't stop in front of an obstacle during navigation. Infrared sensors detect object distance using infrared radiation, but they have limitations such as poor tolerance to light reflections, no object recognition at dead zones, inaccurate detection results with transparent or bright colors, and decreased sensing reliability with moisture and humidity. Analog IR sensors can cause errors at output and signal losses at the amplifier circuit. PIR motion sensors require long calibration times and are sensitive to thermal radiation. Wireless gesture controlling has become ubiquitous, but it needs to focus on relevant areas of application like home appliances, wheelchairs, artificial nurses, and table top screens. The "Obstacle Avoidance Robot" by Paul Kinsky and Quan Zhou adds a laptop holder and camera holder to the main body, using an AT89S52 development board for smooth motor control. The "Obstacle Avoidance Car" by Faiza Tabassum successfully detects and avoids obstacles using simple algorithms and a servo mechanism.