Abstract

In this paper, a study for choosing a suitable system for indoor multi-robot localization is introduced. This work is based on design an environment with pair of sensors, one is fixed on each robot to work as a receiver and the other is arranged in a matrix and distributed uniformly in the environment to work as a transmitter. The coordinate axis of any robot is known when it is receiver sensor detect any transmitter sensor because any one of these sensors has a knowledge coordinate axis. Three types of sensor pairs are used: light emitting diode LEDs (light transmitter) with light dependent resistor LDR (light receiver), radio frequency identification RFID tag (transmitter) with RFID reader (receiver) and infrared sensor pair IR (transmitter and receiver). Practical circuits for these sensor types are built and tested and suitable results are obtained. The performance of these sensors are compared to choose the cheapest and the most appropriate one for indoor localization.

References


Performance Comparison of Three Types of Sensor Matrices for Indoor Multi-Robot Localization


Index Terms

Computer Science Circuits and Systems

Keywords

Localization; light emitting diode; Light dependent resistor; Radio frequency identification; Infrared sensor.