Abstract
Intelligent Low Cost Mobile Robot and Environmental Classification

In this paper low cost mobile robot is designed and developed. A tree diagram of material selection is used to help designer to determine the requirements of mobile robot process design. 5 pieces of low price infrared sensors and 8 bits low cost microcontroller-based system are utilized to process sensors signal and driving actuators to guide mobile robot movement. Fuzzy-Kohonen Network (FKN) method is embedded into the mobile robot as pattern recognition approach of 21 environmental classifications. We have fully implemented the system with a real mobile robot and made experiments for evaluating the mobile robot ability. As a result, we found out that the environment recognition is done well, that mobile robot successfully identified several environmental situations. Furthermore, our method is adaptive to noisy environments and produce satisfactory performance.

References


Index Terms

Computer Science       Robotics & Automation

Keywords

Low cost mobile robot       Pattern recognition
Fuzzy-kohonen network
Environmental recognition