039-RUS

NaviBotics: Indoor Navigation and Localization Mobile Robot

Ahmed Abdelbasit Mohamed, Ahmed Abdelbadee Elsayed, Aya Ibrahim Elsayed, Nourhan Mansour Mohamed, Omar Raafat Abdullatif, Yasmine Ahmed Abdelbasit
Faculty of Engineering, Zagazig University, Egypt,
ahmed_abdelbasit94@hotmail.com, ahmedbadee17@gmail.com, aa356977@gmail.com,
mansournoor83@gmail.com, abrakonus@gmail.com, yasmeenahmed.ya94@gmail.com
Supervisor: Ahmed Mohamed Helmi, Dr. Ing.
Faculty of Engineering, Zagazig University, Egypt,
amhm162@gmail.com

In most environments where robots are used, the challenge of obtaining a robust navigation and localization system arises. This challenge becomes more and more complicated when surrounding environment has a limited space. Therefore, the acceptable navigation error becomes a few centimetres. That is why GPS usage is not appropriate.

Other techniques and sensors are used for that purpose. There are two categories of sensors used; range sensors and object detection sensors. Each type has its scale of usage and drawbacks for other tasks.

In this work, a wheeled robot is to be designed and built from ground up that is capable of indoor navigation and localization