SENSOR PROGRAMMING WITH USING ANDROID PLATFORM

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Abstract

In this report, the features and design of a prototype robotic vehicle with using Android devices and sensors are presented. This study was developed with the interaction of Android-based smartphone and Bluetooth technology. In addition, Arduino Uno, which is the brain of various sensors and robot, was used in this project. The aim of this project is to use for the military field to inform the military personnel in advance of possible terrorist attacks. The user can control the robotics movements from his/her own intelligent device or take the robot in automatic mode and let the car drive its own way. The robotic vehicle can detect whether the obstacles facing the vehicle are human or not. If the obstacle is a living entity, as for that is the human, the red led on the robot lights up and it will calculate the shortest distance it can avoid and will proceed in that direction. If any object we are comparing is inanimate, it will calculate the shortest distance it can avoid and will proceed in that direction. In addition, by using sensors such as infrared sensor, obstacle recognition sensor, the interaction between the robot and the environment is ensured. At the same time, the Bluetooth module allows Arduino to communicate with the Android-based phone. Thus, the importance of sensors is increasing day by day in the military area. Human detectable sensors are used by civilian and military personnel, especially in military areas, to ensure that necessary precautions are taken in advance to warn against possible terrorist attacks..

Key words:
Robotic vehicle, Android-based smartphone, Bluetooth technology, Arduino Uno, Sensors, Military area

Introduction

In our daily lives, sensors used in conjunction with electronic devices play a vital role in facilitating life. Today, sensor technology is used in many areas. Examples of areas where sensor technology is used include military space, airports, factories, shopping malls, and hospitals. Today, there are even taps that feel the movement of the hand using the sensor. There are many sensor types such as sound, vibration, transport, electric current, magnetic, radio, distance, speed, thermal, infrared, temperature. Such sensors can provide a much more specific use of the Android platform for users. These areas of use can be very useful for people with disabilities, they can guide them and alert them to possible disabilities. Everyday life can be customized. What's more, the prominence of sensors in military affairs is increasing day by day.

Solution

The user can control the robotics basic movements (move forward, backward, right, left) from his/her own intelligent device or take the robot in automatic mode and let the car drive its own way. The robotic vehicle can detect whether the obstacles facing the vehicle are human or not. If the obstacle is a living entity, as for that is the human, the red led on the robot lights up and it will calculate the shortest distance it can avoid and will proceed in that direction. If any object we are comparing is inanimate, it will calculate the shortest distance it can avoid and will proceed in that direction. Arduino Uno is used as the brain of the robotic vehicle. In addition, by using sensors such as infrared sensor, obstacle recognition sensor, the interaction between the robot and the environment is ensured. At the same time, the Bluetooth module allows Arduino to communicate with the Android-based phone.
This is a prototype of a robot that can be used to detect a terrorist in the military field. This robot will deliver much better results using more robust and sophisticated materials.

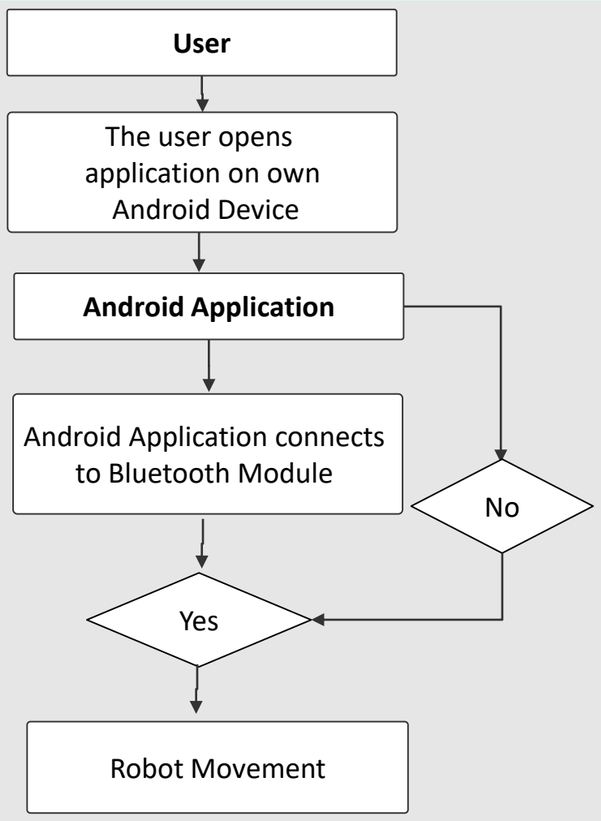


Figure 1 - Flowchart

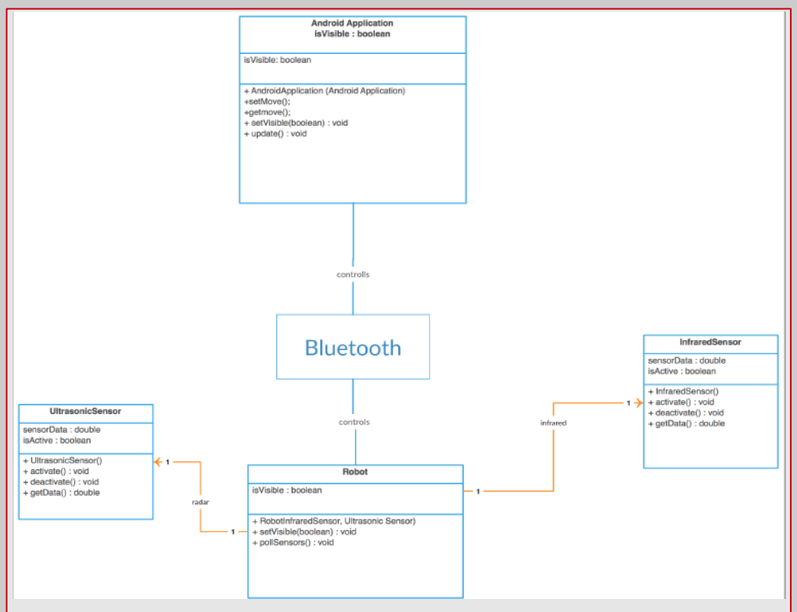


Figure 2 – Class Diagram

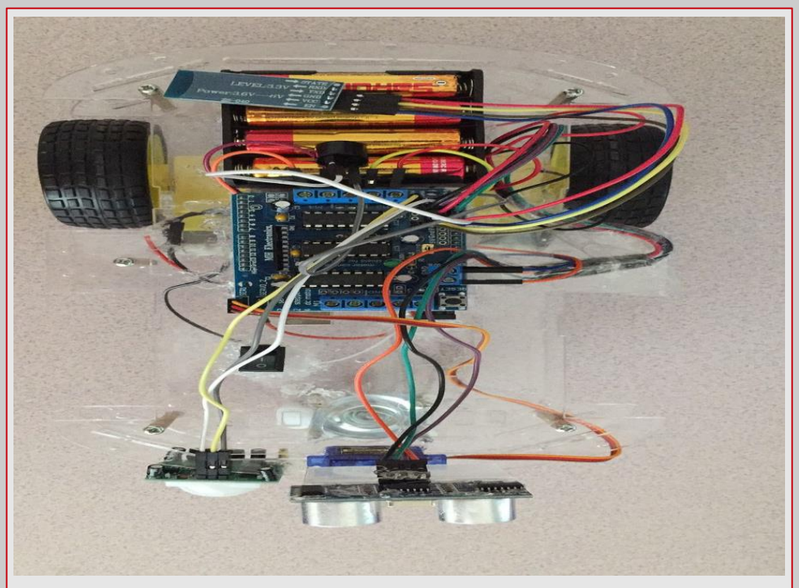
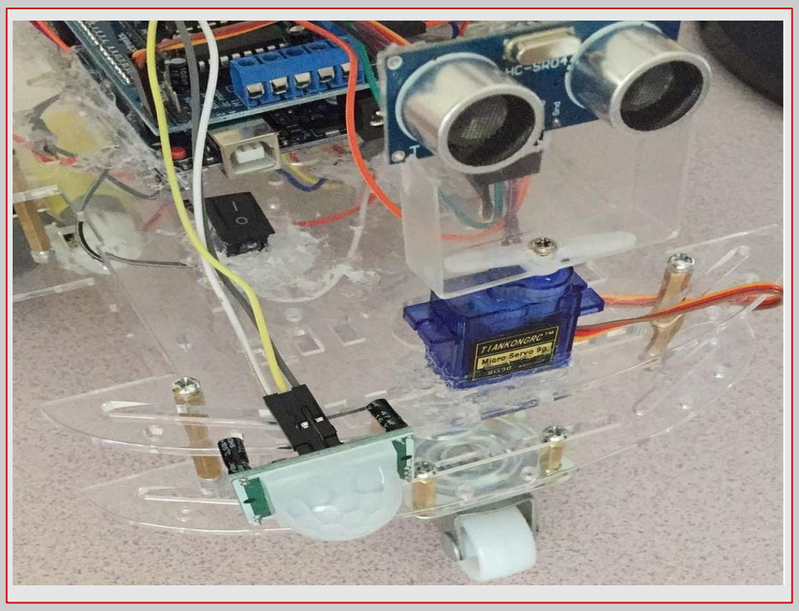


Figure 3 – Finished Product



Company Information

Sensors capable of detecting explosives or weapons have vital preventive measures to detect the location of terrorists, especially in military areas, to take countermeasures against possible terrorist attacks by civilian and military personnel.

Results & Conclusion

In this study, Sensor Programming has been developed using Bluetooth Technology on the Android platform. A robotic vehicle is controlled by an Android device using Bluetooth technology. During this control basic movements of the robotic such as forward, backward, right, left has been performed by the user. At the same time, if the user selects an automatic mode from the application, the control will pass the robot. The robot that encounters an obstacle gives different responses when it perceives the obstacle which lives or dies. The robot uses the temperature sensor to determine if the obstacle is alive. It detects the body temperature as a person between 32-39 ° C. When it detects a living entity, the red led on it will start to light up. The robot will also try to escape from the obstacles. To escape the hurdle, it scans the circumference and measures the furthest distance from the obstacle and begins to move in that direction until it is removed from the automatic mode. Thus, it is aimed to be used in the military field for identifying terrorists. This work was carried out at a certain cost using various hardware materials. The system was run through various tests such as power supply, data transfer time. The Robot can be further developed using more sophisticated materials. The WI-FI module can be used instead of the Bluetooth module. For this, the WI-FI module can be used so that the Bluetooth does not break and can be used in larger areas.

Acknowledgement

At first, we offer our thanks to Sibel Tarıyan ÖZYER, our consultant. We thank all our friends who helped us with the feedback. The help we received from them was a great asset to improve this project and ourselves.