Robot Following Human Using Body Area Structure to Detect the Innominate Miscellaneous

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Abstract
Due to the growth of technological development various types of robots are constructed. Artificial concepts are used in developing man follow robots. These robots are used in various fields. In manufacturing fields robots are helped in production process. Robots are also used to carry luggage's and transfer from one location to another. The whole function is executed automatically without the interventions of the human beings. Man follow robots are used in hospitals, super market, schools, manufacturing places etc. This proposed robot system is used to detect and follow the human beings in any environment condition. Ultrasonic sensors are used to detect the human beings and the robot will start following him and will do all his assistance.

Keywords: Robot, Ultrasonic Sensor, Transceiver, Motor Driver, Transmission time.

I. INTRODUCTION

According to today's scenario all the peoples are busy in their daily activities. Because of this they sometimes forget some important works which they want to do. So this leads to face some critical situations. So now the services of robotics are rapidly increasing. As humans are busy with their work they apply the study of robotics in the real time life. We have proposed improved technology to reduce the work stress of the human be robots. These robots have communication with the people. These robots follow the people with the registered format by using ultrasonic sensors. These sensors determine the distance to a target by measuring time lapse between the sending and receiving of ultrasonic pulse. These are the sensors that measures the distance of a target object by emitting ultrasonic sound waves and converts the reflected sound into an electrical signal. The entire system is controlled by Arduino micro controller it creates an interface between human and robot. Based upon the sensed values the wheels of the robot will start to move.

The research article is ordered as follows: Section II presents the related works of man following robot. Our proposed working model is offered in Section III. The prototype model is presented in section IV. Finally, this article provides the conclusion part in Section V.

II. LITERATURE SURVEY

Muhammad Sarmad Hassan et al., explained about the operations of robot. Creating a communication between the user and the robot is the important factor in developing robot based applications. Current communication technology is one of the key factors for constructing robot. These robots are executed automatically without human interventions. Various researches are going on in this robot area. Robots are creating a communication between the user and the robot and the robots are following the specific person. The robots collect the information from the environment. The main objective of this work is to construct a new robot to track an object and to move towards while tracking. To construct this system with

the help of unique tag for human. The special tag is placed on the humans whom the robot wants to track. Small camera is used to capture videos and extract the desired data from the video. The entire process is controlled by the single controller. [1]

Nathir A. Rawashdeh et al., explained about the applications of man following robot machine. Mainly these men following robots are used in military, domestic and civil works. This man following robot is constructed by using various sensors, laser rays, ultrasonic sensors etc. These sensors are used follow the humans. This proposed system is controlled from remote location through mobile device. Ultrasonic sensors are used to find he location of the person. Robot is used to carry various loads also. In this proposed robot contains 80 x 60 loading area. The total capacity of this robot is 80 kg [2].

KhinKhin Saw et al., explained about the importance of robots in our human life. Mostly it is used to decrease the work level of human beings. Many developed countries use this robot technology to reduce the work level of the people. Here the authors develop a new robot to follow the life. This line follow robot is operated automatically and moved a specific line on the ground. The specific path is visible and it is black line on the white surface area. The lines are already designed by the user. The robot will able to follow the particular line only. This type of robots are operate automatically or semi automatically. It is used to deliver the products from one place to another place in easier manner. The important function of the life following robot is detect the color black or white. The colors are detected with the help of infrared sensor. The detected color value sends to the controller. Based upon the controller signal the motor driver chooses the direction. The direction may be left, right or forward direction [3].

B.Saranya et al., explained about the disasters in the country. The disaster may be occur naturally or manmade disasters. During the disaster time rescue of an each individual is very difficult task. In olden days dogs are trained and used for rescue purpose. The major objective of this proposed new robot is us used to more number of peoples from natural disasters. This robot is executed automatically without the help of human beings. By using this robot more number of peoples saves their precious life. The main usage of this robot is to find humans from unmanned place with the help of sensor and detect the place using GPS and transfer the information to the receiver side using the current concept IoT [4].

Denny Irawan et al., explained about the development of robot technology. Due to the development of communication technology the numbers of robots are also increased day by day throughout the world. The main benefit of the robot is it operates automatically without the help of human beings. Various sensors are used to create an intelligent robot system. This proposed robot is used to follow object using color detection method. The

main objective of this robot is to carry the goods from one location to another location. This robot will find the color of the garments from the people. The robot will follow the humans with the help of camera and it will analyzed using C# coding to find the X, Y axis value of the product to follow. The entire system is controlled by Arduino micro controller and DC motors are operated. The robot follows the object based upon the color [5].

Narendra Kumar Sharivas et al., discussed about the issues in developing robot. The major issue in developing robot is making a interaction between human and robot. In this research article the authors proposed a new robot device used to help the human beings when they are purchase in super market. This robot consists of three important apparatus. I) smart devices carry by human ii) mobile robot device iii) robotic assistant device. This robot is used to assist when the peoples are doing shopping in the supermarket [6].

M. Srilekha et al., designed a new robot. This robot is moved based upon the line. The path is identified with the help of IR sensor. It covers the specified area also. This robot moves forward on a black color line with white surface area. This entire system is controlled by Arduino UNO R3 based upon ATmega328 [7].

ArnabSaha et al., discussed about the purpose of the automatic robot. It is mainly used for Obstacle object avoidance. This new robot moved based upon the light and it is used in industries and military operations. It is constructed by using various hardware and software. The important hardware components are used to construct this automatic robot are Arduino Uno R3 controller, Servo motor device, BO motor component, L298N motor driver device, LDR module part, Ultrasonic HCSR-04 sensor & holder component, skeleton body, Battery & battery holder module. This robot is executed automatically and it has four different types of tasks. The important tasks of this proposed robot are object detection and control the objects from android based devices. It contains LRD sensor and object detection sensors. [8]

Kirubasankar D et al., designed a new robot to follow the object in unstructured environments. In this current situation robots are used to perform various activities. Robots are also used in manufacturing industry for producing large number of products. In this research article the authors designed a new robot to decrease human efforts in home and manufacturing industries. It is used in various applications. Mainly this follower system is helpful in military and medical field. This robot is constructed by using various sensors and cameras. It is used to carry belongings and follows the person. The main usages of Ultrasonic sensors are to recognize and go after the concerned person. [9]

MdYounus et al., designed a new line following Robot with the help of IR sensor. Robot is needed sufficient knowledge to occupy the more area

provided. This robot will move to the specific direction on the black line with white surface area [10].

III. PROPOSED METHOD

In this digital world robots are used for various purposes. Mainly it is used in manufacturing industries, medical field and military purpose. Now this man follow robot is also used in homes and malls also. This system is developed with the help of ultrasonic sensor and patient monitoring sensors. Ultrasonic sensor looks like a human eye. It is used to find the peoples on the path and it also calculates the distance between robot and human. Arduino UNO controller is used to move the robot device towards people. It also used to sense the temperature emitted from any object and to identify the movement of an object. The following figure 1 shows the block diagram of proposed man follow robot.
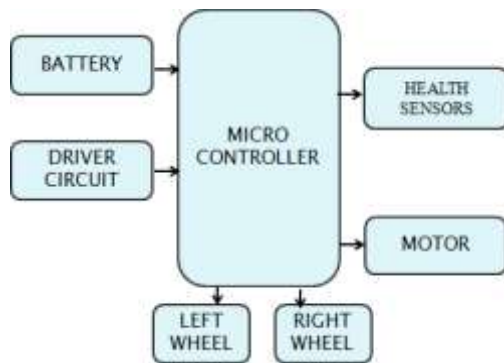

Fig 1. Proposed System

The following parts described about the various components used in this proposed system.

Arduino Microcontroller
The entire device is controlled by Arduino microcontroller. It contains 4KB flash memory and it has reprogrammable property. The controller is capable of 1000 time's reprogrammable capacity. The sensors are connected with the controller using various ports. When the objects are identified by the sensors the buzzer and motor are vibrated. Embedded C language is used develop the program for microcontroller.

The Obstacle detection part
This object detection part contains three ultrasonic detector. Ultrasonic sensor identifies the objects up to 180 cm. The object identification process is depends on speed of the sound signals. The received sound signals transferred to the controller. Depends upon the distance parameter the buzzer will make the sound. The advantage of duration is to identify the objects are in left or right.

IV. ULTRASONIC SENSOR

The ultrasonic sensor is used to detect the object on the way of the blind people. After the hurdles are detected the distance is calculated by the controller. Depending upon the objects distance the voice message is displayed through the speakers.

Ultrasonic sensor is used to compute the distance between the robot and the people need to follow. Arduino Microcontroller device is the brain of this proposed system. This controller is used to coordinate the entire system. It creates the communication between human and the robot. Motor driver is used to drive the robot. The following figure 2 shows the ultrasonic sensor used in this robot.

Fig 2. Ultrasonic Sensor

V. RESULTS AND DISCUSSIONS

The robots are used in various fields like manufacturing industries, medical field and military. The robots are executed automatically without human interventions. This proposed robot system is developed by using ultrasonic sensor and IR sensor. These sensors are used to detect the human and sense the surrounding values. The following figure 2 represents the prototype model of the proposed robot system.

Fig 3. Prototype of Man following Robot Device

This robot is mainly used in manufacturing industries to produce large amount of products. It also used to

transfer the objects from one location to another. Motor Driver is used to move the robot from one place to another place. The entire system is controlled by Arduino microcontroller. In this digital world most of the real time projects are developed using this Arduino controller.

VI. CONCLUSION

In this research a human follow robot is explained. This robot is used to track the human and detect the human beings with the help of patient sensor and ultrasonic sensor. This robot is executed automatically without the help of human beings. This proposed device is tested and executed with real time data. The main benefits of the human follow robot are to help the human beings and it also used in defense department. Ultrasonic sensor is the important component of this robot. It is used to compute the distance of any object with the help of sound waves. It calculates the distance by transfer out the sound waves at a predefined frequency value and listen the reflected sound.

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