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A ROBOTIC CAR CONTROL USING ANDROID APPLICATION

Engineering

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ABSTRACT

Now day's we seen that the human being want's the easier life and every time peoples trying to search the several types of result to break the any problems.Sometimes we're uses the machines that will reduce the sweats as well as needed time. So for that we're enforcing a prototype of a robotic vehicle which is Electric vehicle.According to the report the tradition vehicle contributes the 20- 30% of air pollution.Electric vehicle is eco-friendly. Our proposed system works by using a Wi- Fi module for entering the Wi- Fi command being transferred by the driver. The system apply in this study uses DC motor to move the robotic vehicle to the applicable direction using Wi- Fi commands. This robotic car is solving the major problems which is occurs in traditional vehicles like packing, driving.It has capability to smell the terrain and decide the navigation path without any mortal input.So that, probability of accident is reduces.As we're controlling this robotic car using the android Smart- phone also the handicap people's can drive this car. In exigency the anyone can drive this car using Smart- phone who know the control system of that car.Thus it proves that it'll be useful for eco-System as well as mortal beings.

KEYWORDS

Motor Driver, Dc Motor, Ultra-Sonic Sensor, Servo Motor.

INTRODUCTION

A robot is a mechanical or virtual artificial machine, usually an electromechanical machine that is guided by a computer program or electronic circuitry. The first digital and programmable Robot was invented by George Devol in 1954 and was named the Unimate[1]. Apps control robot is one where the controlling is done by the smartphone apps using Bluetooth. It is possible to control of different parameters of many applications such as to control the speed, light, direction, sound and temperature. Nowadays smart phones are becoming more powerful with reinforced processors, larger storage capacities, richer entertainment function and more communication methods [2].

Recently the Bluetooth technology has become the standard for device- to- device communications for short distance. Wi-Fi is an open standard specification for a radio frequency (RF)- based, long-range connectivity technology that promises to change the wireless communication. It is designed to be an affordable, wireless networking system for all classes of conveyable devices, such as laptops, PDAs (personal digital assistants), and mobile phones. The controlling device of the whole system is a microcontroller [3-4].

The rapid development of smart phone technology, especially the promotion and application of wireless technology, provides a platform and opportunity for some basic ideas and methods in the control theory to be applied to the car[5].

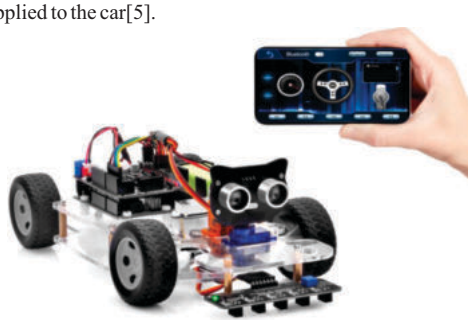

Figure 1: Robotic Car

Sources: https://osoyoo.com/category/osoyoo- robot-car-kit/sg90-servo-steering-robot-car/

Automated smooth controlled cars are required for road safety of developing Bangladesh. Still, many traffic situations remain complex and difficult to manage, particularly in urban settings. The driving task belongs to a class of problems that depend on underlying systems for logical reasoning and dealing with uncertainty[6]. So, to move vehicle computers beyond monitoring and into tasks related to environment perception or driving, we must integrate aspects of human intelligence and BehaviourS so that vehicles can manage driving actuators in a way similar to humans[16].

Indian Tyres Industry:

Table – 1 General Details

The accident rate in India per day	1130 accidents and 422 deaths every day
An annual growth rate in Robotics	6.52%
The percentage of handicapped people in India	2.2%

Source: Indian robotics statistics

Applications Of Robotic Car

- It provides for more development of applications based on android operating system.
- Such as, Application based on sensors (accelerometer, gyroscope) etc. With tremendous smart phone in markets, it is bound to have many more applications in near future.
- It is robust, sensitive and fast moving, hence can be applied in rescue operations.
- Android control car can use for Army transportations also in the red alert areas.
- Security, remote monitoring and transportation and logistics.
- This system also can be interfaced with vehicle alerting system

Case Study

In the present study, Intelligent Transport Systems (ITS) based on Internet of Things (IoT) are getting popular and can be seen as a solution to improve the road safety. One effective technique to reduce traffic hazards and save precious lives could be to reduce the response

time after an accident has occurred. Significant research has been carried out to address this issue and to minimize the response time following an accident [1]. Different approaches are used for this purpose. In this context, VANET (Vehicular Ad-hoc Network) can be utilized [8], [9], in which every moving vehicle acts as a node. On occurrence of accident, the alert messages are communicated via RF (Radio Frequency) module [10]. One approach uses limit switches to detect an accident, GSM (Global System for Mobile Communications) is used to send an alert message and location of accident is traced by GPS (Global Positioning System) module [5]. Display page based systems that use an Webpage to detect vehicle crash are also proposed. These systems measure change of tilt angle by means of an accelerometer sensor, speed by means of GPS and send an alert on detection of accident [6]. Some systems focus on preventive strategy because at the end, goal is to save lives. This system particularly focuses on the safety of two wheelers and checks if the driver is drowsy [2].

CONCLUSIONS

To us the need of internet and the things which are internet based are very much important nowadays. IOT or internet of things is the very important part in both computer and our daily lives. The above model describes how the ardunio programs the car motor module and by IoT we actually rotate the wheels and give direction to the car. IoT gives us the opportunity to work with different platforms and it helps us to create various interesting modules to work on. We also tested the applications used to drive the car. Due to the new concept of Wireless Controlled Car using Bluetooth, Wifi and IOT, we were able to come up with various possibilities that can take place.

REFERENCES:

[1] H.S. Rauschenbusch, Solar Cell Array Design Handbook, "The Principles and Technology of Photovoltaic Energy Conversion", New York: VanNostrand, 1980.

[2] Jhen-Hong Chen, Hao-Chiao Hong and Kuo-Hsing Cheng, "Low-Voltage Indoor Energy Harvesting Using Photovoltaic Cell", IEEE, 2016..

[3] B. A. D. J. C. K. Basnayake, W.A.D.M.Jayathilaka, Y.W.R.Amarasinghe, R.A.Attalage, *"Smart Solar Tracking and On-Site Photovoltic Efficiency Measurement System",* IEEE,2016.

[4] Shahriar Bazyari, Reza Keypour , Shahrokh Farhangi, Amir Ghaedi, Khashayar Bazyari, "A Study on the Effects of Solar Tracking Systems on the Performance of Photovoltaic Power Plants", Journal of Power and Energy Engineering,2014.

[5] PallaviBharadwaj, Kunal Narayan Chaudhury, VinodJohn, "Sequential Optimization for PV PanelParameter Estimation", IEEE Journal of Photovoltaic,2016.

[6] Md.ThuhidUllah Muhammad HelalUddin, "Design, Hardware Implementation and Performance analysis of conventional SEPIC Converter for Photovoltaic System Applications", IEEE, 2016. [7]Fernando Mancilla-David Francesco Riganti-FulgineiAntoninoLaudani, *"A Neural Network-Based Low-Cost Solar Irradiance Sensor"*, IEEE, 2013. [8]MontoMani, RohitPillai,"Impact of dust on solar photovoltaic (PV) performance:Research status, challenges and recommendations", IEEE, 2010.

[9] K.A. Moharram , M.S. Abd-Elhady, H.A. Kandil , H. El-Sherif, "Influence of cleaning using water and surfactants on the performance of photovoltaic panels",Energy Conversion and Management, 2013. [10]Kyohei KUROKAWA, Takashi INUI, Lei LIN, and Masahiro FUKUI K. A. Moharram , M.S. Abd Elhady, H.A. Kandil , H. El-Sherif, *"Development and Evaluation of a Photovoltai Emulation System"*, IEEE International Conference on Consumer Electronics, 2016.