"Android Based Industrial Device Management System For Physical Handicap Person."

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Abstract: *In the developing world patients along with cognitive disabilities must be provided smart wheelchair system with user friendly screen touch interface. This device is useful for the people who are aged and having physical disabilities to operate industrial applications without any external help. The proposed project based on Android technology is targeted about mentioned people. It enables them to move independently from one place to another place without any external aid & at the same time it also helps them to operate industrial electric applications using wireless communication. The two functions can be perform effectively by using a switch which has two states. In state one, the input given to the Android touchscreen signal is passed to the Arduino control the direction of chair, in state two by selecting the appropriate input on the Android touchscreen the user is able to control by Arduino industrial appliances using Bluetooth*.

KEYWORDS: Android touchscreen, Arduino UNO , Driver circuit, Bluetooth & relay.

1. INTRODUCTION

It is one of real time application in industry. Now a days all electrical devices in industry control by manually, but in industry so many electrical devices is there to control all electrical devices we need lot of 'Man power'. If manpower increases maintenance cost also increases, To avoid such drawback we are using Bluetooth communication system.

This is not only used in industry but also in domestic purpose as home appliances controlling using Bluetooth remote, some persons who are not able to walk to switch board such types of persons need this type of project and also who are old persons, why because you can switch ON/OFF load with remote, without moving away from your place.

With increase of elderly and disabled people, a wide range of support devices and modern equipment has been develop to help improved their quality of life. Some patients which cannot manipulate the wheelchair with their arms due to a lack of force face major problems such as orientation, mobility, safety.

LITRATURE SURVEY

"Touchpad Based Wheelchair And Home Appliances" proposed by Mahesh V. Swami ,Kisan V. Waghmare , and Sagarshinde. This project successfully operate the devices and overcome the movementlimitations of physically handicapped person by using wheelchair made by using hardware like Resistive touch screen, ATmega2560 controller, PIC16F877A microcontroller. We use ATmega 328 instead of PIC16F877A. To avoid make-break contact, we used solid state relay.

2. BLOCK DIAGRAM

2.1 TRANSMITTER SECTION

When the first switch is ON, the switch gives high input to the Atmega 328. The input function from switches is used to control the direction of the motors which are fixed to the chairwheels. To drive the motors having high torque, a driver circuit is designed using L293D.When the second switch is ON, that time first switch will be OFF. The input from Android screen is usedto operate the home as well as industrial appliances like bulb, alarm, fan and so on using the Bluetooth technology.
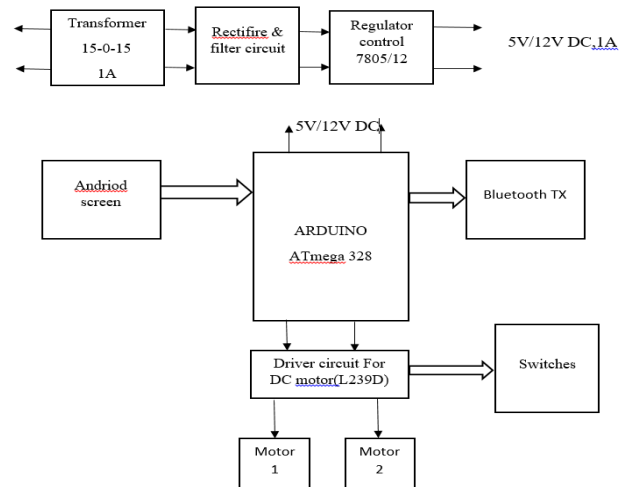

Fig. 1 Block Diagram Transmitter Section.

By using this system, the user can operate the industrial devices without moving from the chair.
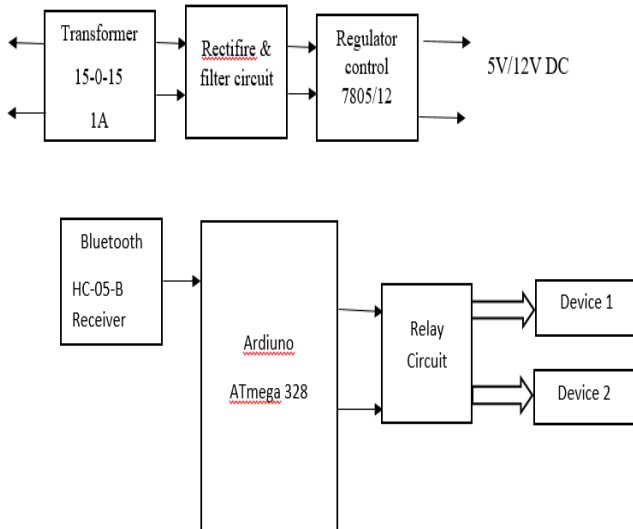
2.2 RECEIVER SECTION

Fig.2 Block diagram of Receiver Section.

The user can operate the industrial devices by selecting the desired option at transmitting section without moving from chair. The input from Android is given to Arduino ,which transmits the signal serially using Bluetooth to switch ON and OFF the required industrial devices by using relays.

3. PROPOSED SYSTEM

Initially, the device controlling signal transmit to Arduino by using Bluetooth application. Solid state Relay is used to avoid explosion in industry. The wheelchair movement can be controlled by using switches.
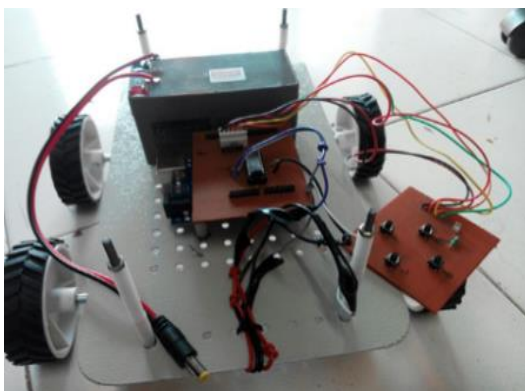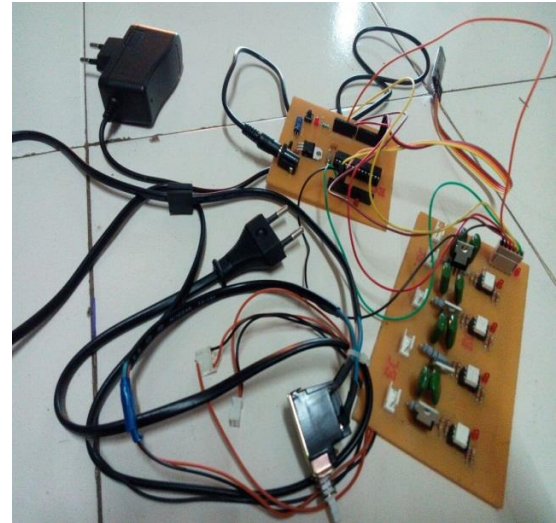

Fig. 3 Switch based Wheelchair Hardware.

The chair has four wheels, the front wheels acts as actuators and two 12V DC motors of 10 RPM metal gearbox are fixed at the front end of the chair. Adriver circuit is designed by the use of N-channel MOSFETS IRFZ44N and L293D.

At the receiver section Arduino ATmega 328 is used. This section is about to ON and OFF the Industrial devices. The 5 volts power supply isprovided to the receiver section. When the switch is ON, the data transmitted by Bluetooth at transmitting section is received by the Bluetooth module which present at the industrial device section. These devices can be computer, fans, bulb, machine, and so on.

4. FUTURE WORK

A lot of future work is required before commercialization of this project. In this development of hardware and software is includes. The system can be redesigned and rebuild as per the operator requirement. We have planned wide range of activities that will be useful to evaluate the system.

5. CONCLUSION

This project is useful to disable person. Disable person become more comfortable, and self-dependent by using this project. This project is also useful in home appliances.

6. REFERENCES

[1] "ARDUINO DEVELOPMENT COOKBOOK" John Nussey, volume 1

[2] "Automatic Wheelchair for physical disabled persons" by R.S.Nipanikar, Gaikwad V., Harne V. ISSN:2278-909X.

[3]Richard Simpson, phD, ATP; Edmund Lopresti, phD; steve Hayashi, phD; "The smart Wheelchair Component System", Journal of Rehabilitation Research &Development, May/June 2004.

[4] "Touchscreen based wheelchair system" by Vasundhara G. Posugade, C.S. Tikhe, ISSN: 2248-1248.

[5] "Touchpad Based Wheelchair And Home Appliances" proposed by Mahesh V. Swami ,Kisan V. Waghmare , and SagarshindeISSN: 2456-2084.