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Android Based Robotic Arm Rover

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Abstract— Now-a-days it is complicated about terroristsand their bomb attacks. Even though we found a bomb it is much more complicated to remove the bomb safely. Many lives are depending on the bomb diffusion. Ourproject helps in diffusion of bombs with safe distance from the bomb. Bomb diffusion is controlled with the help of wireless communication using android phones. By our project we can diffuse the bomb from safe distance and it can save more lives. We can send the few commands to the robot situated at the bomb. We can control two motors situated at the wheels for direction control and other two motors at robot hand. With these four motors we can control all the directions of the robot and at the same time we can pick any object at any direction.

Keywords— Wireless communication, Bluetooth, microcontroller, motor drivers, motors, robot arm, android mobile phone.

I. INTRODUCTION

The android based robotic arm rover can be controlled using an application running on android phone.The rover is fitted with a griper which is used for collecting the samples where human cannot go directly. Bluetooth technology uses the radio wave transmission to exchange the data wirelessly.Wireless camera is also used in front of the rover for clear view. When the rover is in proper position the user can move the robotic arm wherever he wants.
Voltage level of the data of Bluetooth module RS232 which is of +3v to +25v and -3v to -25v.Voltage level of micro controller lpc2148 universal asynchronies receive transmit is +3v to +25 and -3v to -25v. Since the voltage levels of both Bluetooth module and lpc2148 are same we don't need any voltage level converter like max232. We can directly connect output of the Bluetooth module to the LPC2148.

II. EXISTING SYSTEM

The existing monitoring systems underground of coal mine mostly use cable network and very often ofthem use wireless sensor networks but can't provide the details of the number of personnel in the mines .When an accident happened, especially explosion, the sensors and cables usually were damaged fatally, and couldn't provide information for rescue search and detection events.In this application, Wireless sensor network can solve the key issues of communication bandwidth, mobile data transmission, staff orientation, working surface real-time monitoring, synchronization monitoring and so on.

III. PROPOSED SYSTEM

Now a day's every system is automated in order to face new challenges. In the present days Automated systemshave less manual operations, flexibility, reliability and accurate. Due to this demand every field prefers automated control systems. Especially in the field of electronics automated systems are giving good performance. And this is realized by making use of Zigbee technology for communication . Zigbee is new wireless technology guided by IEEE 802.15.4 Personal Area Network standard. It is primarily designed for the wide ranging controlling applications and to replace the existing non-standard technologies. It currently operates in 868MHz band at a data rate of 20Kbps in Europe, 914MHz band at 40kbps in USA, and the 2.4GHz ISM bands Worldwide at a maximum data-rate of 250kbps.Table I. shows a comparison of different transmission media.

TABLE I. Comparison of Different Transmission Media

Characteristics	Infrared	RF Module	Blue Tooth	Zigbee
Power Consumption	Low	Medium	Medium	Low
Controlled Units	1	1	7	254
Distance	15m	50m	100m	100m
Transfer Rate	38Kbps	4800bps	1Mbps	250Kbps
Expansion	Low	Low	Medium	High

In this project there are two sections. The first section is underground section and another section is groundsection. The designed systems are placed in

different parts of the mine and connected by means of Zigbee. In underground section the sensors will sense the environment conditions such as temperature, humidity, gas etc.., and this information is send to ADC of the micro controller, the number of members inside the coalmine is also obtained by means of IR sensor.Here GSM modem sends the message to mobile when sensors exits there threshold level.

Under Ground Section

In the underground section, the parameters temperature, humidity and gas are measured by means of respectivesensors and the output voltage measured by them is directly connected to the ADC of the ARM, as the output voltage never exceeds 5V, there is no need of connecting a signal conditioning circuit. The number of people inside the coalmine is monitored by the help of IR sensor. During a hazard this information will be useful to know whether there are any people remained inside the coalmine. Information regarding the safety measures like wearing oxygen helmets etc., will be already given to the workers so that they can save their life. If any of the received parameters are beyond the ultra- limit, then a Buzzer will be ON, giving warning to the people. Theparameters are displayed on the LCD screen and as well as transmitted to the Ground Section through the Zigbee Transceiver.

Ground Section

In the Ground Section, the Zigbee Transceiver receives the information and sends to the ARM controller.The controller is connected to the GSM modem through RS232.A number of mobile phones to which the data has to be sent is connected tothe modem through GSM network. In addition the controller is connected to PC; the measured values are continuously displayed and stored in the PC for future use.

IV. ADVANTAGE

1. The robot is small in size so can be used for spying.
2. This robot can be used in the borders for disposing hidden land mines.
3. The robot can be used for surveillance
4. Can be used for security purpose

V. LIMITATIONS

1. Itcannot be used in high level temperature area just like active volcanos.
2. People can lose jobs in factories.
3. It needs a supply of power.
4. It needs maintenance to keep it running.
5. It costly to make or buy a robot.

VI. CONCLUSION

The operating system of smart phones is android which can develop effective remote control program.At the same time, this program uses blue-tooth connection to communicate with robot.It has proven to allow a two way communication between phone and the robot which would allow a non-expert to interact with and adjust the functionality.

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