CONTROL OF BOMB DETECTION ROBOT USING SERVER AND AI

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ABSTRACT

In this paper, we are mainly looking for, saving the man's life from the explosion of the bomb in public areas (airports, museum, malls, etc.) here's an idea how to control bomb detection robot via server and artificial intelligence. Today we are facing many problems and lots of deaths because of the illegal activities of the terrorists, in order to overcome this, we take many security measures, but still it is not possible to control, so we go with the help of robots, from this we can easily find bombs and terrorist threats, because the robots are more ideal than human, we can easily control the robot activities and easily analyze. The presence and type of bombs.In bombs they commonly use highly radioactive elements, these elements eject the radiation continuously, the real challenge is to find that radiation, and type of radiation, then only we can predict the next solution to defuse the bombs, in order to do that we can use AI. From these robots we can also reduce the human resource in finding bombs and defusing it.

1. INTRODUCTION

As the concept of the paper deals with AI and servers the main intention of the robot here is to deploy the bombs in the absence of human to control it.

When the robot is on the move in Warfield it detects the presence of bomb in its limit and sends the data to the Oracle server via ZigBee transmitter. Here in the server the data given by the robot are analyzed by Hadoop big data and converted into required information and sent to the app or web page used by the user sitting in a far place and the server waits for the further instruction. If the instruction is not delivered within a specified amount of time due to some circumstances the AI of server sends the next instruction on what needs to be done to the robot by taking decision over the analyzed data.

2. XBEE TECHNOLOGY

XBee is that the brand of Digi International. These radios were introduced underneath the MaxStream whole in 2005 and it absolutely was supported the IEEE 802.15.4-2003 customary designed for point-to-point and star communications and also the air information measure rates were of 250 Kbit/s.

The Two models of XBee technology are one. Lowest price one MW XBee a pair of. Higher power one hundred MW XBee-PRO. In initial introduction, an outsized variety of latest XBee radios are introduced and additionally all the XBee are marketed and sold-out by the Digi whole.

The XBee radios will be used with the minimum variety of connections — power (3.3 V), ground, knowledge in and knowledge out (UART), with alternative counselled lines being Reset and once it goes to Sleep. XBee families produce other managements like flow control, input/output (I/O), analog-to-digital converter (A/D) and indicator lines inbuilt. These modules are generally going with many antenna choices, as well as U.FL, PCB embedded, additionally wire and RPSMA.

The XBee modules will be operated either by a clear knowledge mode or during a packet-based APPLICATION PROGRAMMING INTERFACE (API) mode. Within the clear mode, knowledge returning into the information IN (DIN) pin is directly transmitted OTA updates to the supposed receiving radios with none modifications to that. The Incoming packets are of 2 sorts they're directly self-addressed to 1 target (point-to-point) and broadcast to multiple targets (star). This mode is primarily utilized in instances wherever associate degree existing protocol cannot tolerate

changes to the information format. AT Commands are wanting to manage the radio's settings. In API mode the information is wrapped during a packet structure that enables for addressing, the parameter setting and packet delivery feedback, as well as remote sensing and management of digital I/O and analog input pins.

Fig1. XBee Transmitter

3. APACHE HADOOP

Apache Hadoop is associate degree ASCII text file software system framework for distributed storage and distributed process of terribly giant knowledge that sets on pc clusters designed from artefact hardware. All the modules in Hadoop square measure designed with an elementary assumption that hardware failures square measure common and may be mechanically handled by the framework. The core of Apache Hadoop consists of a storage half, called Hadoop Distributed filing system (HDFS), and a process half known as the MapReduce. It splits the files into giant blocks and distributes them across nodes during a cluster. To method this knowledge, Hadoop transfers packaged code for nodes that are processed in parallel supported the info that must be processed. This approach takes advantage {of knowledge of knowledge of information} section nodes for manipulating the info they even have access to permit the dataset to be processed quicker and additional expeditiously do than it'd be during an additional typical mainframe computer design that depends on a parallel filing system wherever computation and data are distributed via high-speed networking. The knowledge concerning XBee technology and Apache Hadoop are taken from the net supply for study concerning these topics

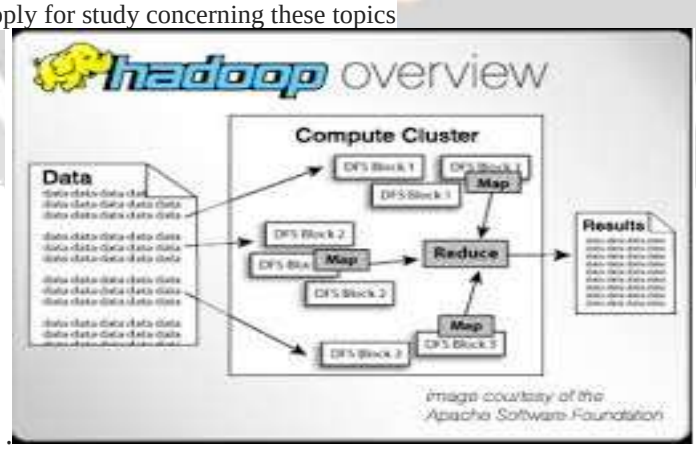

Fig2. Apache Hadoop

4. WORKING

When robot in the explosive field detects any bomb using the laser or ion spectrometer detection device. It sends the data back containing some decimal values based on the proportion of signal received by detectors after the signal hits the target object. These values cannot be understood by humans and it takes more time for humans to

analyze and refer to previous data to come to a conclusion about what type of bomb is it which causes delay in decision making and there will be loss of precious human lives also . Hence to avoid such consequences we send data to big data analyzer and send the required information to the user. We have also used AI in case if the required information doesn't reach the end user on time to make decision the AI will make decision on behalf of them.

4.1 Phase 1

As shown in fig.3 when robot detects the presence of bomb in its circumference the bomb needs to be deployed so it starts sending the data to a specified IP address collected by it to the server using XBee transmitter. In the server the data which is received from the robot is analyzed by the Hadoop big data and it generates the information which can be understood by the end user. This information is then sent to the server from where it is sent to app and the webpage is updated.

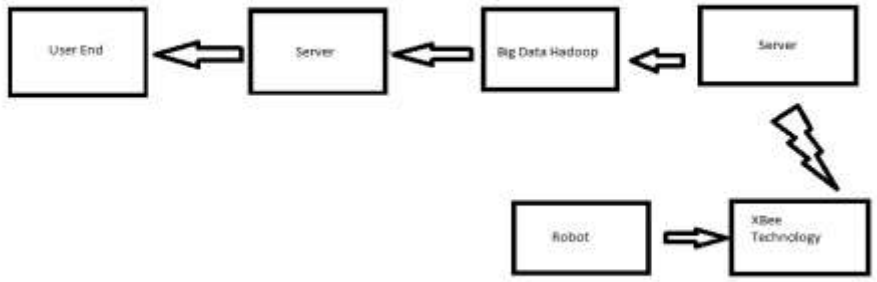

Fig3. Phase 1 working of network

4.2 Phase 2

As shown in fig4 user sends the next instruction to the robot through app or website which is then sent to server. From the server the instruction is sent to Hadoop big data which understands this instruction by decoding it and according to it will send the command to the robot by first sending it to server and from there to the XBee transmitter which intern gives the command to the robot. If the user does not give the next instruction within a specified amount of time then the Hadoop itself gives the next instruction on the basis of the data analysis that it has done and by taking the decision on the analysis is sent to server which in turn sends it to XBee transmitter which in turn says the robot what to do next.

If the network between the XBee transmitter and server is lost this might happen only when the robot is let into remote areas also if there is no proper network coverage for the transmitter to transmit the data it will lose connection with server.

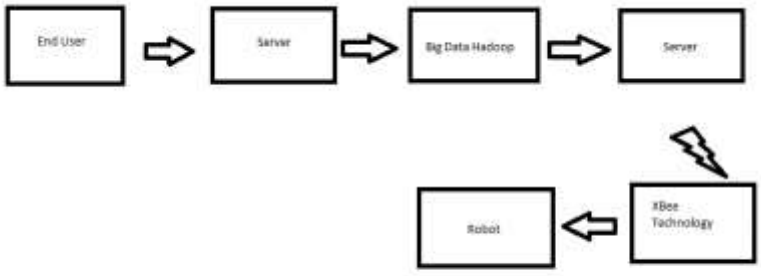

Fig4. Phase 2 working of network

5. FLAWS

In this paper even though we have considered all the steps to make this idea work in real world with less amount of errors. Even though there are some errors which could not be rectified like, if the network between the XBee transmitter and server is lost this will lead to when the robot is let into remote areas also when there is no proper network coverage for the transmitter to transmit the data it will lose connection with server. If there is not enough battery backup in robot to transmit the data to server the connection would be lost between these transmitter and the robot. If there is a hardware crash in big data analysis and software crash due to some reasons also when the big data could not analyze the data and give a proper information to the user sitting in a faraway place from the robot he might not be able to guess what kind of a bomb has been planted also he might not be able to tell the proper solution to robot. So this might lead to a dilemma where the robot and user end might struck without giving proper reasons to the problem which has been detected.

6. CONCLUSION

There were many varieties of sensors with so many types of bombs, but selecting precise sensors and removing bomb earlier is important and saving human resource also plays a major role in this place. The type of communication technique its range of operation, where the user can control the movement of robot from any part of world by getting live records of surrounding as feedback, Compared to earlier robots work on LAN Wi-Fi with constraints have limited operation range, The robotic vehicle with different sub modules can widely be used as surveillance robot for security purpose and emergency rescue operations where human cannot footpace and user will be able to alert prior to intruder in his premises. Preventing the upheaval to protect human's life from any damages which are caused by bombs while diffusing it through strong powers of robot/human is our main intention. Also we suggest for the better data analyzer through phone and servers with databases maintained at relevance user side or from system side for the better capabilities of performing a detection of bomb operation. There should be proper sophisticated phones and systems to be used for better transmitting and receiving of information between the devices for better performance.

"If we have no peace, it is because we have forgotten that we belong to each other"

-Mother Theresa

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