

Fabrication of Robot using Raspberry Pi with Android Wi-Fi Controlled for Human and Fire Detection Alerts

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Abstract: Present generation utilizes the modern electronic equipment, the modern electronic equipment will failure some times, that failure may causes fire incident. To detect and prevent the fire accidents and its incidents to identify in this paper will propose approach as “Fabrication of Robot using Raspberry Pi with Android Wi-Fi controlled for human and fire detection alerts”. The proposed equipment will fixed and tested in some simulation it will show effective results.

Keywords: Fabrication Robot, Wi-Fi, Smart Phone, Fire Detection and Raspberry.

I. INTRODUCTION

With the improvement of computer embedded technology, the Wi-Fi and smart phone has ended up more normal in our everyday life, and the robot likewise strolls into our life steadily [1, 2, 3, and 11]. The Wi-Fi engineering makes it workable for us to control robot remotely, while smart phone makes it feasible for us to control the robot in the visual interface. As of late, the smart phone has ended up less expensive and less expensive, and it is not difficult to be conveyed and worked, so it has more application fields. At present, the most widely recognized versatile advancement stages are Symbian, iPhone, windows and Android. As a consequence of the open source code and high operational degree, the application extent of Android is standard in as something to be shared use [4, 9, 10, 17, 18, and 19].

An administration robot was composed, which was developed for 60th celebration festival of Shandong University of Science and Technology, and there is a modern machine in the Robot inside as its core, and it possesses personnel capacities, for example, faculty enrolment, face recognition, singing, moving, articulation execution, etc. At present, the robot is typically controlled by utilizing the mouse, console or voice. Despite the fact that the control of the mouse and console is exact, it is badly designed to plan extraordinary space for mouse and console before the robot. Moreover, in spite of the fact that the control of voice is helpful, it needs exceptional mouthpiece and the recognition rate is not high. In this way, the canny cell telephone of Android framework is utilized to control the administration robot so it can join with cellular telephones by remote correspondence and can react as indicated by the will of

individuals [5]. So in viable range, we can send directions in any position to control the robot without console or voice.

II. Raspberry Pi with Android Wi-Fi

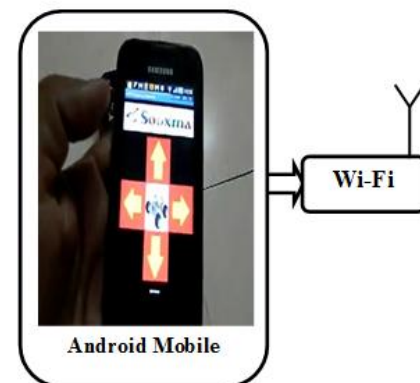


Figure1. Block diagram of transmitter section of Fabrication of Robot using Raspberry Pi with Android Wi-Fi controlled for human and fire detection alerts.

An embedded system is a combination of software and hardware to perform a dedicated task. Some of the main devices used in embedded products are Microprocessors and Microcontrollers. Microprocessors are commonly referred to as general purpose processors as they simply accept the inputs, process it and give the output. In contrast, a microcontroller not only accepts the data as inputs but also manipulates it, interfaces the data with various devices, controls the data and thus finally gives the result. The proposed “Fabrication of Robot using Raspberry Pi with Android Wi-Fi controlled for human and fire detection

alerts” using ARM-11 processor is an exclusive project which is controlled through Android mobile using Wi-Fi wireless technology. The Robot can be moved in all the four directions (front, back, left and right) through predefined keys assigned from the android mobile application.

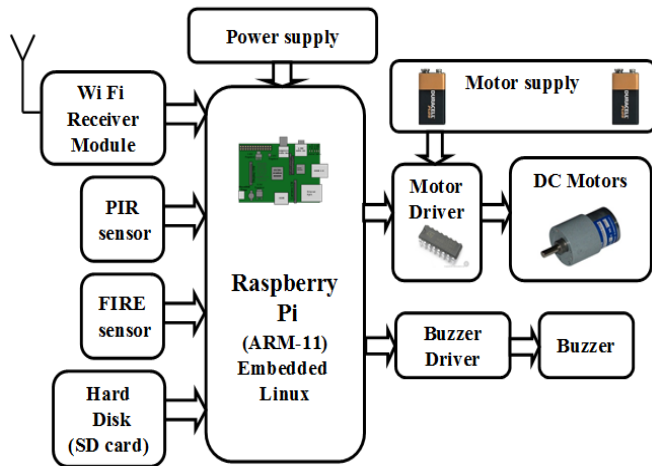


Figure2. Block diagram of receiver section of Fabrication of Robot using Raspberry Pi with Android Wi-Fi controlled for human and fire detection alerts.

The controlling device for the robotic controlling in the project is Raspberry Pi processor. The data sent from Android mobile phone over Wi-Fi will be received by Wi-Fi receiver module connected to processor. The Raspberry Pi processor reads the data and decides the direction and operates the DC motors connected to it accordingly. The robot also comprises of sensors like fire and PIR sensor which alerts the user when fire was detected or any humans were detected.

III. RESULT ANALYSIS

The project “Fabrication of Robot using Raspberry Pi with Android Wi-Fi controlled for human and fire detection alerts” was designed such that a Robot which was controlled through Android phone over Wi-Fi technology. The Robot was also used to alert through buzzer alarm if it detects and human presence and also fire alerts using PIR and Fire sensors.

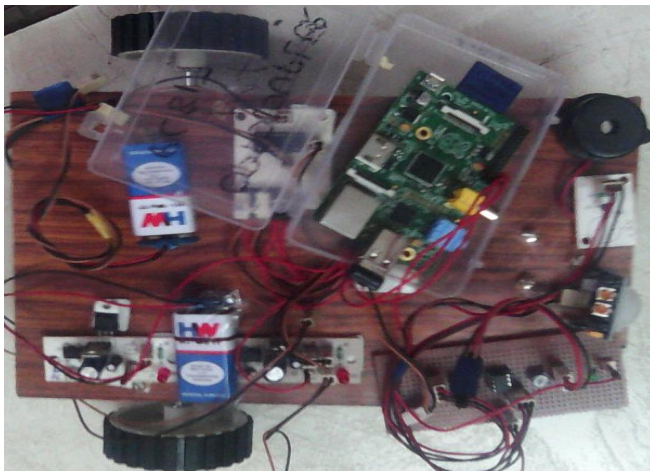


Figure3. The Fabrication Robot image of receiver section.

IV. CONCLUSION

Integrating features of all the hardware components used have been developed in it. Presence of every module has been reasoned out and placed carefully, thus contributing to the best working of the unit. Secondly, using highly advanced IC’s with the help of growing technology, the project has been successfully implemented. Thus the project has been successfully designed and tested. This project can be extended using high efficiency GSM module using which the robot can be controlled from unlimited distance. The GSM module gives the intimation of the name plate details to the predefined number through SMS. The GPS module can also give the location of the fire or as leakages were detected in case of emergencies. The vehicle location and also tracking can be done using this project idea.

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