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A MICROCONTROLLER BASED REMOTE TRACKING SYSTEM INTEGRATED WITH SOCIAL WEBSITES FOR THE MONITORING AND RESCUE OF DEMENTIA PATIENTS

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ABSTRACT

This paperdescribes a patient tracking system for mild cognitive impaired patients. The proposed architecture of the system integrates GPS-nRF technology for tracking dementia patients. The main emphasis of the work is on miniaturization and making the system cost effective indigenous product. This project is designed for providing easier technique to find out the missed humans. The primary purpose of this project is that these kinds of patients require continuous monitoring by the medical assistants or some relatives.

Key words: Dementia, Patient monitoring, Microcontroller, Remote tracking, Monitoring and rescue.

INTRODUCTION

Dementia is a chronic or persistent disorder of the mental processes caused by brain disease or injury and marked by memory disorders, personality changes, and impaired reasoning. In the existing system manual searching is followed to trace missing patients and TV announcement is another way to locate these patients. Alternatively Police department has to be approached to search the patient.

No automatic smart technology exists to find the lost persons.

Related work

Work related to tracking of dementia patients and elderly people have been carried out and reported in many earlier papers[1-7].

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Proposed system

The main aim of the proposed model is to notify the interested people on missing of dementia patients immediately and post the information on the social websites automatically to quickly trace and rescue them. The proposed system constitutes three modules, viz. patient module, guardian module and server module. The user/patient module is a wearable device. It is provided with dementia persons. nRF and GPS enabled hardware form part of the wearable model.

An Android based APP is developed. The patient module is always paired with the guardian module, which receives information whenever the patient goes out of the normal living range. The application also automatically sends complete information about the missing dementia patient to all social websites (eg: Facebook). The application envisages the social website users to communicate to the server/ monitoring people about the whereabouts of the patients, if anyone is located by them in their neighborhood. Monitoring people can quickly rescue the patients with the help of GPS.

System overview

Block diagram describing the overview of the proposed system is given below:

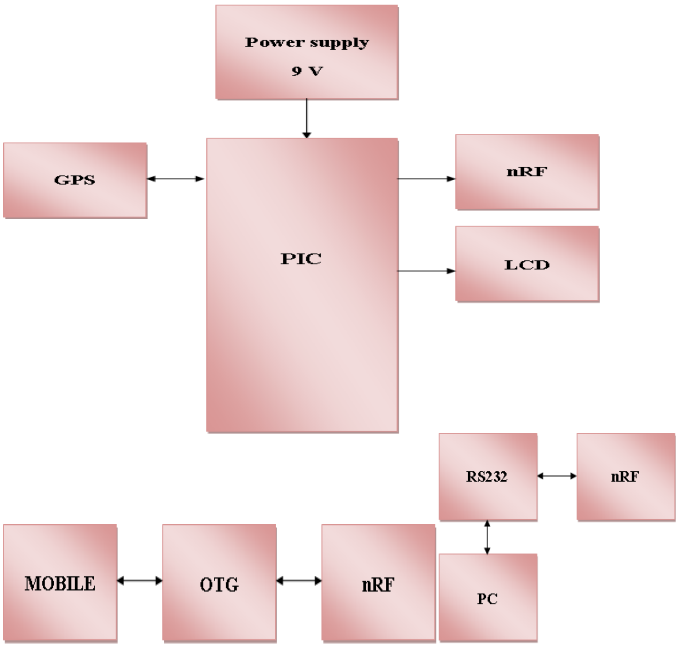

Fig. 1: Block diagram of proposed system (patient, guardian and server section)

The proposed system employs GPS-GSM technology to track the location of dementia patient and also to communicate with them. The GPS module is used to extract the location for outdoor tracking. Using this technology any device with a GPS receiver can give the accurate location from the latitude and longitude values. The GSM modem is used for global range wireless communication and connects the users through the subscriber identity module with the mobile equipment to any area.

Hardware implementation and results

The photograph of the fabricated module is shown in fig. below.

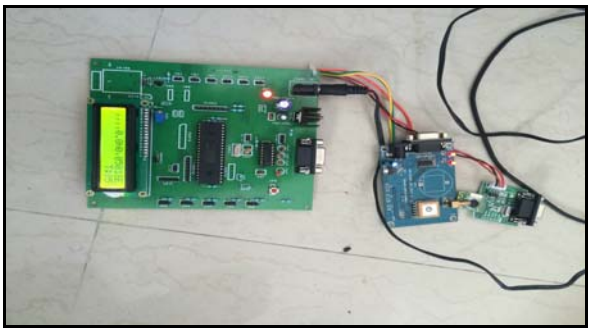

Fig. 2: Photograph of the fabricated module

CONCLUSION

This work has demonstrated the working of the developed prototype for the tracking of the dementia patients, with the help of GPS technology. The location of the patient can be found with the help of social media. Free Google maps and the use of HTTP protocol as a method for sending data could reduce the monthly recurring cost for the individual user and also for the hospitals that employ the system. This tracking unit of dementia patients can be provided at an affordable cost.

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