ELECTRONIC BLIND STICK FOR LOW EYE SIGHT PEOPLE

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ABSTRACT

As age of human beings increase most of the people lose their eye sight nowadays, they face more problems in their daily routine life. One such example are persons with low visibility, who can't operate mobiles in the emergency conditions whenever they need help from required persons, (requirement of doctor). This project informs the user through voice about the distance of a particular object ahead them through voice output. Along with this another feature is also added such as sensing the lighting condition in the room and illuminating an LED lamp automatically.

1. INTRODUCTION

In today's lifestyle, technology has become very dependable in many ways thereby simplifying day-to-day life. As age of human beings increase most of the people lose their eye sight nowadays, they face more problems in their daily routine life. One such example are persons with low visibility, who can't operate mobiles in the emergency conditions whenever they need help from required persons, (requirement of doctor). Aged peoples with blindness find problem while walking, such as unable to view obstacle at a close distance in front of them which may inflict injuries to one-self.

To overcome these such problems faced by low sight by old aged people, we have come up with a solution which helps them to walk freely and plays the audio if any obstacle is detected and intimate to the person by text message with the area where the patient is, and calling to specified persons. This project informs the user through voice about the distance of a particular object ahead them through voice output. Along with this another feature is also added such as sensing the lighting condition in the room and illuminating an LED lamp automatically.

The rest of this paper is organized as follows: Section 2 overviews a MANET routing protocol OLSR and routing attacks against OLSR. Section 3 describes how our extended D-S evidence model can be integrated with importance factors. Sectio 4 represents the system design. Section 5.represents implementation, Section 6rconcludes the paper, Section 7 future enhancement.

II. LITERATURE SURVEY

An efficient healthcare system is a requirement for both developed countries, where the cost of healthcare is high and security and privacy are critical issues and developing countries like India, where there is a mass population to be taken care. An efficient, reliable, robust and secure health flow is important to manage patients, their health records smoothly and for

the right care to reach to the patient at any time.

For example, secure identifiers can help an individual to reduce errors.With the recent advancements in mobile devices involving secure credential storage, larger storage capability, wireless communication interfaces and computational power, they can be used in healthcare for not only gathering vital health parameters, of a patient, but also assist them to take precautionary measures for an efficient treatment.

Technology employed as a part of healthcare can also help determine location of the patient in case of emergency through location service (GPS) on recent mobile devices.

III EXISTING SYSTEM

The main contribution of this paper is, proposal of a robust secure healthcare architecture using Android based mobile device with GSM & GPS interface.

ADVANTAGES:

- ➢ It helps aged people to navigate through the surroundings without injuring themselves.

APPLICATION

- ➢ This application can also be utilized in automobile fields.

IV. HARDWARE AND SOFTWARE REQUIREMENTS

Components Used

- ➢ ARM7 microcontroller
- ➢ GSM module
- ➢ GPS
- ➢ LCD
- ➢ LDR
- ➢ IR sensor
- ➢ LED Driver
- ➢ LED lamp
- ➢ Audio play back
- ➢ Speaker

Softwares Used

- ➢ Keil Micro vision,
- ➢ LPC 2000 Flash Utility
- ➢ Android 4.0
- ➢ Eclipse

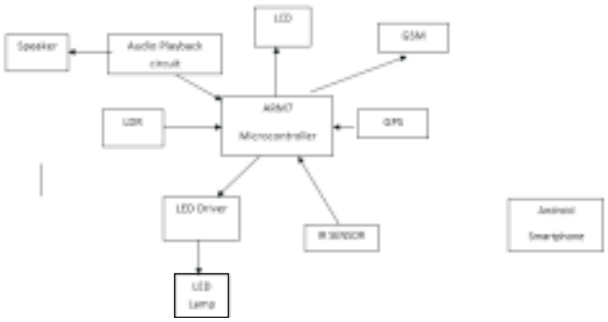
V. Implementation

The main contribution of this paper is, proposal of a robust secure healthcare architecture using Android based mobile device with GSM & GPS interface.

Demo Points

- LCD is used only for testing purpose.
- GSM to transfer data to the android mobile.
- Only for demo concern, android mobile is used. As a future product, the embedded unit and android application will be integrated in a single unit.
- This entire system shown in the below block diagram apart from the Android based Smartphone is assumed to be wearable by the patient.

Block Diagram



Description

"Electronic Stick and Android Smart phones to the Aid of Blindly Disabled Individuals", aims at providing a proper navigation for individuals suffering from blurred vision and blindness, which happens due to ageing factor.

Many embedded systems have substantially different designs according to their functions and utilities. In this project design, structured modular design concept is adopted and the system is mainly composed of ARM7 microcontroller, LDR, LED driver, LED lamp, IR sensor, GSM ,GPS ,Audio play back circuit and speaker.

The microcontroller located at the centre of the block diagram forms the control unit of the entire project. Once the entire unit (comprising of microcontroller and sensors) is worn by the patient the sensors begin to monitor the surrounding environment conditions. The output of the sensors is a voltage which corresponds to the surrounding environmental conditions. This voltage generated by the sensors is fed to the inputs of the microcontroller. In this case IR sensor and LDR form the input to the microcontroller. Based upon the program embedded within the controller an output is generated and transmitted to the Audio play back circuit . In case of obstacle detected GPS co-ordinates will be SMS to the care taker via GSM module. Once they receive the Co-ordinates they can place the co ordinates in the Android App and get the location details.

IR sensor is utilized to any obstacle from the patient way. This can come in handy for individuals with poor sight due to ageing factor. If any object is located, the sensor on detecting the presence of the obstacle delivers an input voltage to the microcontroller which then alerts the patient via Audio play back output.

If the lighting in a particular room, is dimly lit due or natural light is too less, the LDR attached to the system activates the high power LED lamp.

In this project, LCD is also utilized in order to show the working of every unit.

Microcontroller ARM7

ARM is a family of instruction set architectures for computer processors based on a reduced instruction set computing (RISC) architecture developed by British company ARM Holdings.

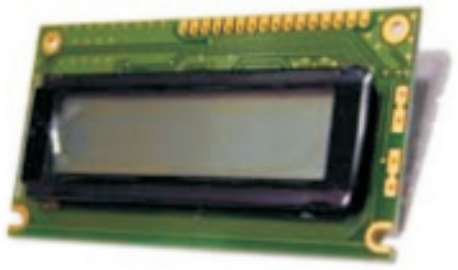
LPC2148 MICRO-CONTROLLER

LPC2148 is the widely used IC from ARM-7 family. It is manufactured by Philips and it is pre-loaded with many inbuilt peripherals making it more efficient and a reliable option for the beginners as well as high end application developer.

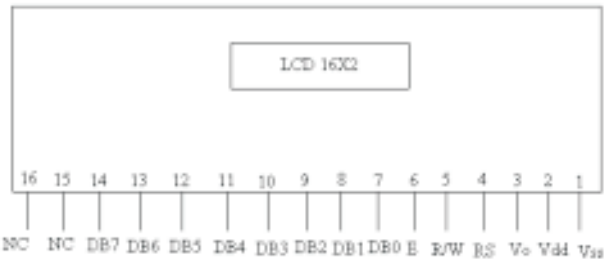
Transformer:

Transformer is a device that transfers electrical energy from one circuit to another through inductively coupled conductors the transformer's coils or "windings".

LCD –16 X 2(LIQUID CRYSTAL DISPLAY



Liquid crystal display (LCD) offers several advantages over traditional cathode ray tube that makes them ideal for several applications. Of course LCD's are flat and they use only a fraction of power required by cathode ray tubes. They are easier to read and more pleasant to work with for long periods of time. There are several tradeoffs as well, such as limited view angle, brightness and contrast, not to maintain high manufacturing cost. 16x2 LCD is used in this project to display data to user. There are two rows and sixteen columns. It is possible to display 16 characters on each of the 2 rows. It has registers, command and data register.

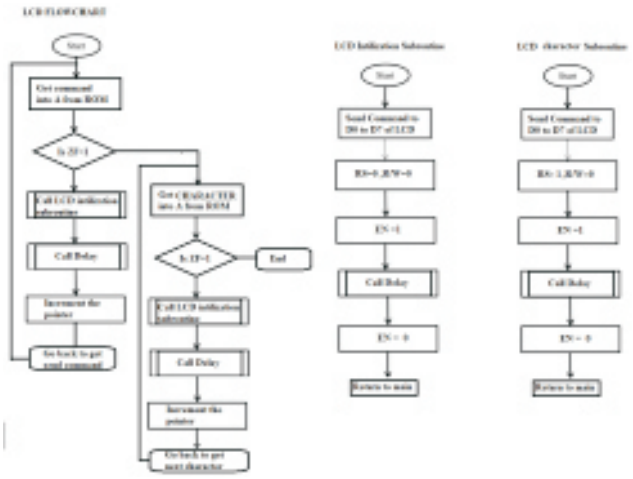


LCD pin description

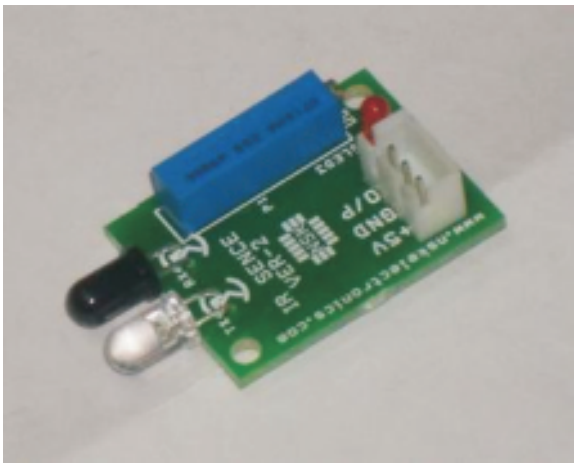
Algorithm to send data to LCD

- Make R/W low.
- Make RS=0; if data byte is command.
- RS=1; if data byte is data (ASCII value).
- Place data byte on data register.
- Pulse E (HIGH to LOW).
- Repeat the steps to send another data byte.

LCD flow chart



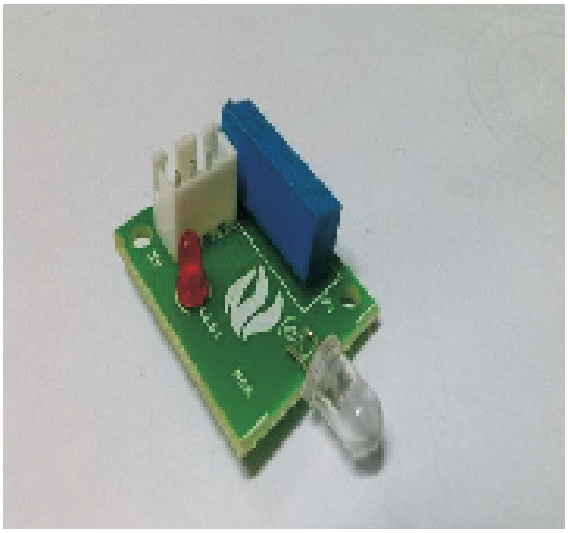
IR SENSOR



Features

- IR Based Obstacle Detecter
- Adjustable Range with POT
- Operating Voltage 5v
- Sesitivity upto - 30cm-Adjustable
- Logic output -1/0 -5v
- Application - Industrial safety devices

FIRE SENSOR



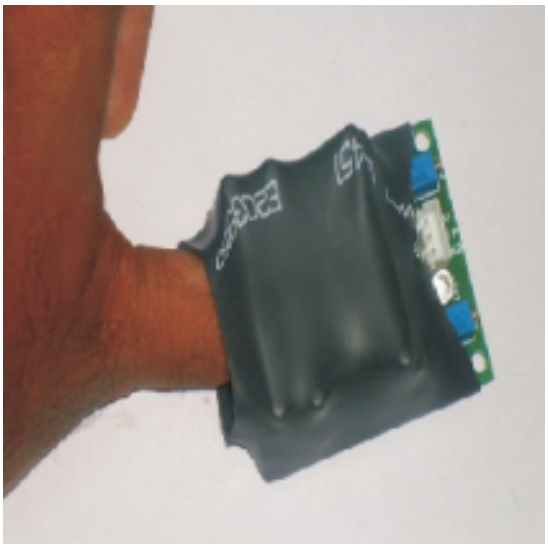
Description

The Fire sensor is used to detect fire flames. The module makes use of Fire sensor and comparator to detect fire up to a range of 1 meters.

Feature

- Allows your robot to detect flames from upto 1 M away
- Typical Maximum Range :1 m .
- Calibration preset for range adjustment.
- Indicator LED with 3 pin easy interface connector.
- Input Voltage +5VDC
- GGPS MODULE
- The Global Positioning System (GPS) is a space-based satellite navigation system that provides location and time information in all weather conditions, anywhere on or near the Earth where there is an unobstructed line of sight to four or more GPS satellites

EASY PULSE - HEARTBEAT SENSOR



The new version uses the TCRT1000 reflective optical sensor for photo plethysmography. The use of TCRT100 simplifies the build process of the sensor part of the project as both the infrared light emitter diode and the detector are arranged side by side in a leaded package, thus blocking the surrounding ambient light, which could otherwise affect the sensor performance

VI. CONCLUSION

With the ongoing changes taking place in today's technology the entire unit can be made into a simple and compact device. Flexible solar power developed on a plastic strip can be attached to the unit as the source of power supply.

Reference

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