Wireless Communication Based Detecting of Mobile Phones and Information Report Systems Via Sms

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Abstract - The work presents a new approach to establish a wireless technology for the locality of people location, and continuously track locations of these moving (people). Track the people continuously it transmits people and along with location information will passed to transceiver and then transceiver passed to control monitoring place receiver. And in the second application if the person was required to admin room means can give the corresponding voice ID ask him to come to admin room with the help of voice alert. In this system we maintain information of the people activities. And the People can be monitored from the remote Places also through GPRS technology and the announcement also given through voice kit.

The project describes a radio frequency-based and zigbee based system for location identification and tracking. The basic design of the system consists of transmitters in the environment, transceivers on the person or object for which location information is desired, and a receiver in the environment. Each of these three pieces of hardware and their associated software are designed.

Keywords - Zigbee Module, Ir Sensor, Gsm Modem etc.

I. INTRODUCTION
Now a day there is high development in technology all the information is present on internet so if anyone want any information then it is easily available on internet which students can access whenever they want using their Mobiles. Because of this reason student are attracted towards various thing like social media, mobile games and they try to ignore study and they waste much more time even inside classrooms. When students enter the campus they try to avoid the lectures. Students are not ready to attend lectures, they secretly use their mobile phones and they are bunking lectures and but parent believe that their son/daughter are attending college and lectures.

But it is not happening in reality. So, to avoid these things this proposed system can be implemented. This system will track the student in the campus, will detect if they are using mobile phones inside classroom and also manages attendance of student. If student try to bunk the lecture and his/her attendance and use mobile phones inside classroom the proposed System uses Mifare technology to track the student and IR sensor to maintain student count while entering and leaving classroom, also using Mobile detectors to detect the Mobile usage. This is sometimes called the Card Serial Number (CSN) or Universal Identifier (UID), and can be read by any Mifare reader without knowing any of the secure keys used to protect the rest of the card. Mifare has 1 to 4 inch read range. It uses a frequency of 13.56 MHz. It has the capacity 1000 bytes of data storage. It consists of a chip and a coil antenna. Mifare uses RF energy to power the chip and send and receive data. It could even store biometric templates to be verified by biometric readers.

II. ATTENDANCE MONITORING IN CLASSROOM USING SMARTPHONE & WI-FI FINGERPRINTING
Academic performance is directly affected by student attendance during the lecture hours. There are existing manual and automated attendance tracking systems that work to ensure that students attend the lectures without fail. However, the practical implementation of most automated systems have drawbacks such as high monetary cost, the need to install specialized hardware, and proneness to fake or proxy attendance. To address this, we propose a novel attendance marking system with which students may mark attendance using their smartphones.

While applying facial recognition via the smart phone's front camera to determine the student’s identity, the system also makes use of the campus Wi-Fi network to determine the student’s location. The proposed system does not require high monetary cost or specialized hardware and yet incorporates adequate fool-proof measures to counter fake or proxy attendance.
Experimental studies with our system show that fingerprinting, which is the technique used here to determine indoor location, can achieve very good positioning accuracy even in classroom environments.


Peru is currently in a high-risk zone because it is prone to natural disasters, such as earthquakes. Earthquakes affect infrastructures that are harmful to the population that may be trapped inside. According to the INEI (Instituto Nacional de Estadística e Informática), 90.6% of households in Peru have at least one member who has a mobile phone, which facilitates the searching of people in cases of natural disasters through the detection of the radiofrequency of the mobile phones.

The following work consists in the Design of a Radio Frequency Detection System for Mobile Phones capable of capturing the phones transmission signal when they are connected to the base antenna, because it will be applied when an earthquake happens thus minimizing the time search for people who suffer accidents inside their buildings and get trapped in the rubble.

2. Detection of Driver’s Mobile Phone Usage

While driving, mobile phone usage is dangerous that it may cause traffic accident. Detection and proof of usage should be done by a system. Anti-Distracted Driving Act that became a law last August 1, 2016 will now be enforced starting May 18, 2017 in the Philippines. So drivers may get penalized if they use mobile phone while driving. On this study it is intended to develop a neural network application that can detect mobile phone usage. Sample pictures used for the system training and testing. Positive pictures and negative pictures were used to train the Cascade Object Detector on MATLAB.

3. Development of Smartphone-based Student Attendance System

Student’s attendance tracking is a vital issue in order to monitor students’ performance in the classroom as well as in their studies. It becomes a key concern because the university authority maintains a rule that one student can only attend in the exam if his/her attendance is higher or equal to several percentages (60%,70% or 80% etc.) otherwise not. The traditional attendance system needs student’s to physically sign the attendance sheet each time for the attendance of each class.

This is unnecessarily time-consuming to notice and mark student's name on the attendance sheet. This also happens that some students may accidentally or willingly mark the student's name like as proxy. The hard copy of attendance sheet may get lost. Using Smartphone like as Android Technology the course teacher will be able to take attendance easily by our designed mobile application and save the attendance in the phone as well as in server and can check percentage and also can print as hard copy. Using the stored information, this system is able to mark attendance, marking intruders’ entry, attendance percentage calculations send emails, and send SMS to the guardian to keep them updated about their child’s attendance at the Institute. The designed system has an online access from any place and any moment which may extraordinarily assist the course teacher with keeping track of their student’s attendance.

III. PIC16F877 CKT DESCRIPTION

The PIC Microcontroller board consists of circuits necessary to operate a Microcontroller with PC interface. The board contains provisions for interfacing 8 analog inputs and 23 Digital level signals. The Description of the circuit is given below.

1. Analog inputs-Pin no 2 to 10 can be used to connect any analog signals of range 0-5v.

1.1 Digital signals-As mentioned in the circuit the pin outs from the port is taken to a 26 pin FRC connector through which we can connect our Digital level signals 0 or 5 volts.

1.2 Clock -The PIC16F877 can be operated in Four Different oscillator modes. The user can program two configuration bits FOSC1 and FOSC0 to select one of these four modes.

  *LP - Low Power crystal
  *XT - crystal / resonator
  *HS - High speed crystal/resonator
  *RC - Resistor capacitor

The clock we have used is 10 MHZ which full under HS category.

2. RF Transmitter & Receiver-The RF TX-434 and RF RX-434 are extremely small, and are excellent for applications requiring short-range RF remote controls. The transmitter module is only 1/3 the size of a standard postage stamp, and can easily be placed inside a small plastic enclosure.

2.1 RF TX-434- The transmitter output is up to 8mW at 433.92MHz with a range of approximately 100 foot (open area) outdoors. Indoors, the range is approximately 50 foot, and will go through most walls.

The TWS-434 transmitter accepts both linear and digital inputs, can operate from 1.5 to 12 Volts-Scand makes building a miniature hand-held RF transmitter very easy. The TWS-434 is approximately the size of a standard postage stamp.
This technology allows users to set up a network quickly, and allows them to set up networks where it is impossible or inconvenient to wire cables. Wireless networks are more cost-efficient than wired networks in general. Bluetooth (802.15.1) was the first well known wireless standard facing low data rate applications. The effort of Bluetooth to cover more applications and provide quality of service has led to its deviation from the design goal of simplicity, which makes it expensive and inappropriate for some simple applications requiring low cost and low power consumption.

These are the kind of applications this new standard is focused on. It's relevant to compare here Bluetooth and ZIGBEE, as they are sometimes seen as competitors, to show their differences and to clarify for which applications suits each of them. The data transfer capabilities are much higher in Bluetooth, which is capable of transmitting audio, graphics and pictures over small networks, and also appropriate for file transfers. ZIGBEE, on the other hand, is better suited for transmitting smaller packets over large networks; mostly static networks with many, infrequently used devices, like home automation, toys, remote controls, etc.

V. IR SENSOR

IR transmitter and receiver LEDs have been around for a long time so the technology is already seen in mainstream society (i.e. water facets in bathrooms/toilets/hand dryers). The Sharp IR Range Finder works by the process of triangulation. A pulse of light (wavelength range of 850nm +/-70nm) is emitted and then reflected back (or not reflected at all). When the light returns it comes back at an angle that is dependent on the distance of the reflecting object. Triangulation works by detecting this reflected beam angle - by knowing the angle, distance can then be determined.

The IR range finder receiver has a special precision lens that transmits the reflected light onto an enclosed linear CCD array based on the triangulation angle. The CCD array then determines the angle and causes the rangefinder to then give a corresponding analog value that can be read by a microcontroller. Additional to this, the Sharp IR Range Finder circuitry applies a modulated frequency to the emitted IR beam. This ranging method is almost immune to interference from ambient light, and offers amazing indifference to the colour of the object being detected. In other words, the sensor is capable of detecting a black wall in full sunlight with almost zero noise.
VI. GSM MODEM

1. Introduction- GSM (Global System for Mobile) / GPRS (General Packet Radio Service) TTL-Modem is SIM900 Quad-band GSM /GPRS device, works on frequencies 850 MHZ, 900 MHZ, 1800 MHZ and 1900 MHZ. It is very compact in size and easy to use as plug in GSM Modem. The Modem is designed with 3V3 and 5VDC TTL interfacing circuitry, which allows User to directly interface with 5VMicrocontrollers (PIC, AVR, Arduino, 8051, etc.) as well as 3V3 Microcontrollers (ARM, ARM Cortex XX, etc.).

The baud rate can be configurable from 9600-115200 bps through AT(Attention) commands. This GSM/GPRS TTL Modem has internal TCP/IP stack to enable User to connect with internet through GPRS feature. It is suitable for SMS as well as DATA transfer application in mobile phone to mobile phone interface.

6.1 Features:
- Quad Band GSM/GPRS : 850 / 900 / 1800 / 1900 MHz
- Built in SIM (Subscriber Identity Module) Card holder
- Built in Network Status LED Inbuilt Powerful TCP/IP(Transfer Control Protocol / Internet Protocol) stack for internet data transfer through GPRS (General Packet Radio Service)
- Audio Interface Connectors (Audio in and Audio out)
- Most Status and Controlling pins are available
- Normal Operation Temperature : -20 °C to +55 °C
- Input Voltage : 5Vto 12VDC
- LDB9 connector (Serial Port) provided for easy interfacing

2. Hardware Description-
2.1 SIM Com SIM900AGSM Module-This is actual SIM900 GSM module which is manufactured by SIM Com. Designed for global market, SIM900 is a quad-band GSM/GPRS engine that works on frequencies GSM 850MHz, EGSM 900MHz, DCS 1800MHz and PCS 1900MHz.

2.2 MAX232 IC-The MAX232 is an integrated circuit that converts signals from an RS-232 serial port to signals suitable for use in TTL compatible digital logic circuits, so that devices work son TTL logic can share the data with devices connected through Serial port (DB9 Connector).

2.3 Serial port /DB9 connector-User just needs to attach RS232 cable here so that it can be connected to devices which has Serial port / DB9 Connector

3. Power Supply Socket-This power supply socket which actually named as AC/DC Socket provides the functionality to user to connect external power supply from Transformer, Battery or Adapter through DC jack. User can provide maximum of 12VAC/DC power supply through AC/DC socket.

- Power On/Off and GSM On Switch Power On/Off switch is type of push-on push-off DPDT switch which is used for only make power supply on/off provided through AC/DC Socket indicated by ‘Power LED. GSM On Switch is type of Push on DPST tactile switch which is used for only to make GSM module ‘On ’indicated by ‘Module On/Off LED’ while initiating with Network indicated by ‘Network Indication LED”

- SIM (Subscriber Identity Module) Card Slot This on board SIM card slot provide User functionality of insert a SIM (GSM only) card of any service provider. Process of inserting and locking SIM card into SIM card slot is given in this manual. While inserting in and removing out SIM card from SIM card slot, User needs to take precaution that power supply should be OFF so that after making Power supply ON it will be easy to reinitialize with SIM for this module.

4. RXD, TXD and GND pins (JP2)- These pins are used to connect devices which need to be connected to GSM module through USART communication. Devices may be like Desktop or Laptop Computer System, Microcontrollers, etc. RXD (Receive Data) should be connected to TXD (Transmit Data) of other device and vice versa, whereas GND (Ground) should be connected to other device’s GND pin to make ground common for both systems.

VII. SINGLE VOICE RECORD/PLAYBACK MODULES

1. General Description -Voice Recorder module is a type of module built in recording and audio playback. It allows you to record sound from a microphone, the line-in jack, or music played by another player in WMA or WAV formats. They are small handheld devices used primarily for recording voice memos, dictation, lectures, or conferences for later playback.

2. Product Description -The single voice playback (ISD18B20), which is a single-chip, single-message record/playback device. Recordings are stored into on-chip non-volatile memory, providing zero-power message storage. With the embedded Flash memory employed, data retention up to 100 years and typical 100,000 erase/record cycles can be reached. Time for recording is 8-20 seconds. Loop, jog playback and single-pass playback features are present in this module. This module having high quality voice recording and high fidelity replay. It can be used as a speaker module and can be controlled through microcontroller MCU.
VIII. EMBEDDED C

Sometimes, a tap set needs provide data values from the kernel that cannot be extracted using ordinary target variables ($v$). This may be because the values are in complicated data structures, may require lock awareness, or are defined by layers of macros. System tap provides an “escape hatch” to go beyond what the language can safely offer. In certain contexts, you may embed plain raw C in tap sets, exchanging power for the safety guarantees listed. End-user scripts may not include embedded C code, unless system tap is run with the -g (“guru” mode) option. Tap set scripts get guru mode privileges automatically.

Embedded C can be the body of a script function. Instead enclosing the function body statements in { and }, use %{} and %}. Any enclosed C code is literally transcribed into the kernel module: it is up to you to make it safe and correct. In order to take parameters and return a value, a pointer macro THIS is available. Function parameters and a place for the return value are available as fields of that pointer.

The familiar data-gathering functions pid (), exec name (), and their neighbors’ are all embedded C functions. Since system tap cannot examine the C code to infer these types, optional annotation syntax is available to assist the type inference process. Simply suffix parameter names and/or the function name with string or long to designate the string or numeric type. In addition, the script may include a %{} block at the outermost level of the script, in order to transcribe declarative code like #include <linux/foo.h>. These enable the embedded C functions to refer to general kernel types. There are a number of safety-related constraints that should be observed by developers of embedded C code.

- Do not dereference pointers that are not known or testable valid.
- Do not call any kernel routine that may cause a sleep or fault.
- Consider possible undesirable recursion, where your embedded C function calls a routine that may be the subject of a probe. If that probe handler calls your embedded C function, you may suffer infinite regress. Similar problems may arise with respect to non-reentrant locks.
- If locking of a data structure is necessary, use a try lock type call to attempt to take the lock. If that fails, give up, do not block.

IX. APPLICATIONS

- Student Tracking.
- Student Attendance.
- Wireless Parents information.
- Wireless based mobile detector.

REFERENCES