Automatic Disabling and Enabling Of Mobile Phones in Restricted Areas

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Abstract —*The purpose of this paper is to disable the mobile phones in restricted areas. Restricted means something is put under control or limits. The usage of mobile phones in some restricted areas like hospitals,petrolbunks, conference hall,temples, examination hall,theatres should be avoided.In order toreducedisturbances,distraction,accidents,tocontrol noise pollution and to ensure safety and security the mobile phone should be disabled automatically without any manual help. Besides safety, public mobile phone use should be restricted in certain places to ensure there is peace and quiet, which allows concentration and focusing on work.This could be done by using a wifi module,Arduino controller and a mobile application. The mobile phones gets back to the normal mode when the user leaves the restricted area using the same mechanism.*

Keywords— *wireless fidelity(Wi-Fi),Electronic Stability Program(ESP,Arduino.*

I. INTRODUCTION

The use of mobile phones nowadays has become predominant in public places which has its own advantages and disadvantages. Increasing usage of this device is becoming a serious security/privacy risk.For security and other needs many organizations have restricted usage of mobile phones.In our project we are going to incapacitate the mobile phones in such restricted areas and this can be done by using a mobile application.In places like hospitals where silence needs to be maintained to avoid disturbances likethe beeping, ringing, and singing ring tones in mobiles can be a disturbance, and the tendency for patients to answer their phones in the middle of a consultation is irritating. Using the mobiles at petrol stations lead to ramification, heedlessness with the car and other persons on foot, etc. For this cause, using them at petrol bunks is not recommended. In holy places people use mobile phone for chatting, playing games capturing pictures which distract them from worshiping and disturbs the people surrounded by them.In the extant,system

mobile phone jammers are used to prevent cellular phones from receiving signals from the basestation. When used,the jammer effectively disables the cellular phones.The pitfall behind the mobile jammer is it augment the situation where you are essaying to dial 911 and cannot get through because the mobile jammer is placed in the location .Jammers interferes in other wireless networks also. Therefore,in our proposal, we are going to place an external circuit in the restricted area which detects the mobile phones using an Arduino controller and Wifi module and overcomes the drawback of mobile jammer.

A. Existing system

Mobile phone jammer is a device used to prevent mobile phones from receiving signals from base stations. In existing system mobile phone jammers are used.A jamming device transmits same radio frequencies of greater power as the cell phone, interrupt the communication between phone and cell phone base station in the tower.It is called a denial of service attack. When used, the jammer effectively disables cellular phones. These devices can be used in pragmatically any location, but are found primarily in places where a phone call would be particularly disruptive because silence is expected, like restricted areas.Jammers fully disconnects the connection between the mobile node and the Base station. Jammer interferes in other wireless networks also disturbing the signals . It causes huge loss to service providers. Sometimes, we don't get the proper notification at the proper time if the mobile device is present in the region of jammer. In cases of emergency, a quick call to the police, ambulance, or fire department is necessary. Yet if a jammer is in function, calling from a mobile phone will not be possible.

B. Proposed system

In this project, we use an automatic disabling system in order to avoid some noisy signal and distractions.In the restricted area, we use a aurdino microcontroller and the wifi modulekit to send thedata about the restriction.Thewifi module identifies the wifi enabled mobile phones and transfer

the message about the restriction to disable the speaker and keypad.Through the android service program,a service is scheduled when an API such as the JobScheduler, introduced in Android 5.0, launches the service.A service is initiated when an application component calls startService(). After it'sinitated, a service can run in the background indefinitely, even if the module that started it is destroyed. Usually, a started service executes a single operation and does not return a result to the user. A service is bound when an application component binds to it by calling bindService(). A bound service offers a client-server interface that allows module to interact with the service,send requests, receive results, and even do so across processes with inter-process communication .A bound service runs only as long as another application component is bound to it. Multiple components can bind to the service at once, but when all of them unbind, the service is destroyed.Through this we overcome the drawback of existing system.

II.PRACTICAL IMPLEMENTATION

The mechanism we used in our method does not need any external circuit to be placed inside the mobile phone for disabling the peripheral devices in mobile.The principle behind this method is simple.

A. Wifi module(ESP8266)

The ESP8266 wifimodule is a self free standing SOC with consolidated TCP/IP protocol stack that can give any microcontroller access to your wifinetwork. Each ESP8266 module comes pre-programmed with an at command set firmware, meaning, you can simply attach this up to your arduino device and get about as much wi-fi-ability .All possible wireless device has an RF transceiver that guides the sending and receiving of the wireless signals that are being transmitted from a wireless device.In our project the wi-fimodule helps in transmitting the signal for mobile restriction in the prohibited zone.

B. Arduino

The Arduino UNO is a microcontroller board dependson the ATmega328. It has 6 analog inputs, 14

digital input/output pins ,a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to assist the microcontroller; simply connect it to a computer with a USB cable or power it with an AC-to-DC adapter or battery to get started.In our project ,we use Arduino for broadcasting a specific signal through serial ports in the restricted or prohibited area.

C. Working

Since operating this project the Arduino controller kit is employed in the restricted zone. When the mobile phones, enters into the frequency range of 2.4GHz to 5GHz the Arduino constantly sends out character 'R', denoting it as restricted zone via UART protocol, through the serial port communication via 4th and 5th pin in arduino.The Wi-Fi module receives the character from the serial port through wifi module RX pin transmits it to the Wi-Fi enabled mobile phones in that zone through wifi module TX.On receiving the signal from the transmitting end, the speaker and keypad of the mobile phones in that area get disabled through android service.Android service is a component that is used to perform operations on the background such as, handle network transactions, interacting content providers etc. It doesn't have any user interface. The service runs in the background indefinitely, even if the application is destroyed.Once the person is out of the receiving zone, the speaker and keypad gets automatically enabled.

III. DIAGRAMS
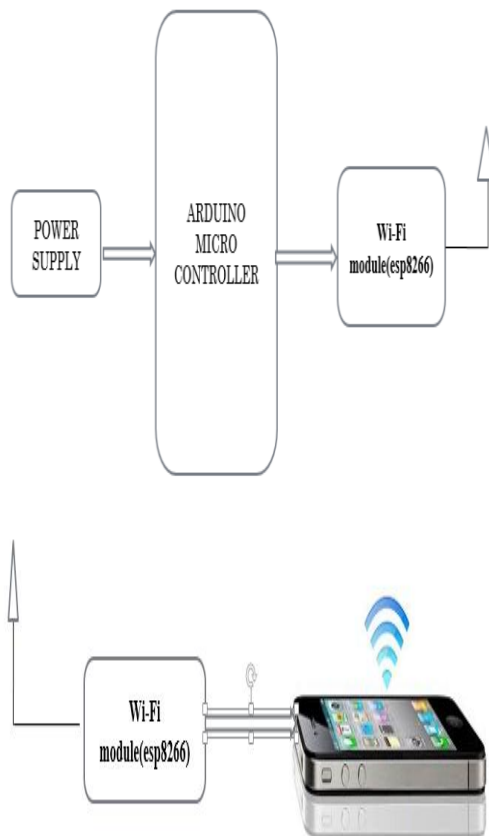### A. *Architecture diagram*
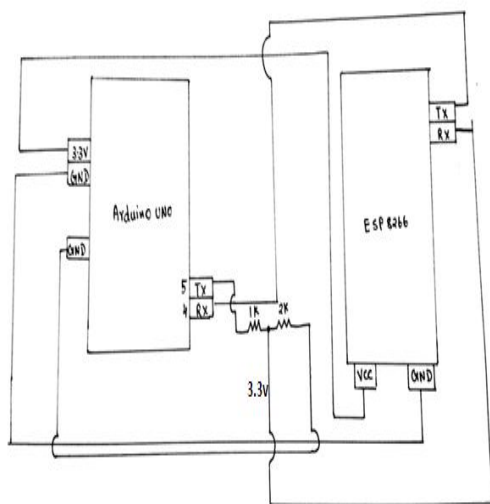

FIG.1
B. *Circuit diagram*

FIG.2

IV. BRIEF DESCRIPTION OF THE DIAGRAMS

The features of the incorporation of the present method and device are set forth with particularly in the added claims.These incorporation may best be understood by reference to the following description taken, in coexistence with the accompanying drawings,in the figures and in which:

FIG.1 is an architecture diagram for the arduino controller kit that is used for implementing the devices to detect the wireless enabling device when it enters the restricted area of mobile phone coverage.

FIG.2is a circuit diagram for the Arduino and wifimodule.It describes the connectivity of the pins between the modules.

V. DETAILED DESCRIPTION OF THE CIRCUIT DIAGRAM

AnArduino UNO is a microcontroller board based on the ATmega328 .It has 6 analog inputs,14 digital input/output pins.we use the 4th and 5th digital pin of the Arduino as transmitter and receiver pin.the transmit pin of the Arduino is connected to the voltage divider (1K) and receiver pin is connected to transmitter of the ESP8266.Reciever pin of ESP8266 is connected to the output of 1K resistor which provide 3.3V power supply to the wifi module.The main thing to remember is, that this device works with 3.3V;even the RX and TX pins**.**we use two ground pin of the Arduino for connecting with an ESP8266 module ground pin and voltage divider(2K) .The power supply from Arduino with 3.3V is connected to ESP 8266 module VCC pin.The kit start working by transmitting the character to the mobile phone based on working explained in section.

VI. RESULT
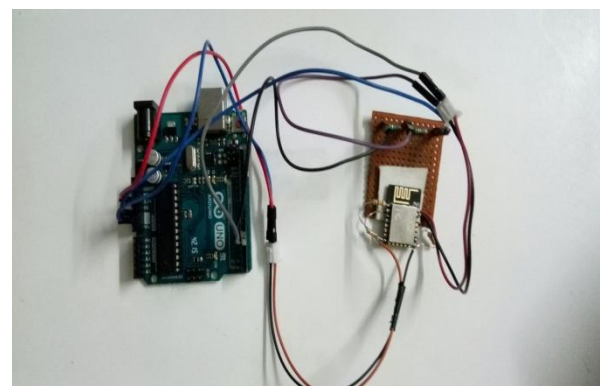
VII. RELATED WORK

A. Automatic disabling of cell phones at prohibited areas

The principle used in this paper is Handoff Mechanism.Here we should add external hardware circuit inside the cell phone ,so this is shown and stimulated using Mat lab Simulink Toolbox.The major disadvantage is hardware circuit is to be placed inside the mobile phone and it is less cost efficient.

B. Automatic deactivation/activationof cellular phones in restricted areas

In the First embodiment, the transmitter is a lowpower Bluetooth. A second embodiment uses RF or magnetic induction signaling loops at physical access points of a venue. A third embodiment has a computer which uses a unique cell phone identifying number, time of day and a timeout value as entry variables to a secret algorithm which generates a code number.A fourth embodiment allows the user to enter a timeout value from the local keypad. After the desired time, as determined by the timer, the deactivated feature, ifor example the ringerin Will resume normal operation.The timeout factor in the fourth embodiment is the disadvantage of the paper.

C. Disabling of mobile phone in restricted areas using 8051 microcontroller

This method uses external circuits that are to be added into the CellPhones, The input jamming signal frequency is in the order of 400Mhz. The deactivation of the LCDpanel and speaker is done through a micro controller 89c51.The disadvantage of the paper is emergency call facility is not provided and hardware efficiency is less.

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