

**A Seminar Report on**  
**MOBILE JAMMER**

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### CERTIFICATE

This is to certify that **VAISHNAVI PANDURANG JADHAV** from **Third Year Computer Engineering** has successfully completed his seminar work titled “**MOBILE JAMMER**” at AISSMS College of Engineering, Pune in the partial fulfillment of the Bachelor’s Degree in Engineering.

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## **ABSTRACT**

A GSM Jammer or cell phone jammer is a device that transmits a signal on the same frequency at which the GSM system operates, the jamming success when the mobile phones in the area where the jammer is located are disabled.

Communication jamming devices were first developed and used by the military.

Where tactical commanders use RF communications to exercise control of their forces, an enemy has an interest in those communications. This interest comes from the fundamental area of denying the successful transport of information from the sender to the receiver.

Nowadays mobile jammer devices or cell phone jammer software are becoming civilian products rather than electronic warfare devices, since with the increasing number of mobile phone users the need to disable mobile phones in specific places where the ringing of cell phones would be disruptive has increased. These places include worship places, university lecture rooms, libraries, concert halls, meeting rooms, and other places where silence is appreciated.

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## **INTRODUCTION**

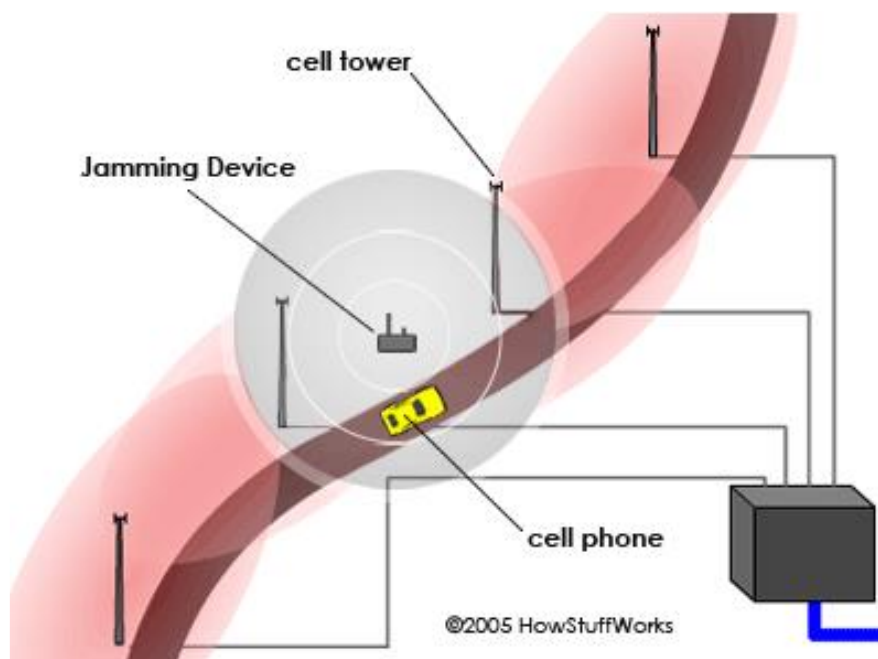
Cell phones are everywhere these days. According to the Cellular Telecommunications and Internet Association, almost 169 million people in the United States had cell phone service in January 2004. And cell phones are even more ubiquitous in Europe.

It's great to be able to call anyone at any time. Unfortunately, restaurants, movie theatres, concerts, shopping malls, and churches all suffer from the spread of cell phones because not all cell phone users know when to stop talking. Who hasn't seethed through one side of a conversation about an incredibly personal situation as the talker shares intimate details with his friend as well as everyone else in the area?

While most of us just grumble and move on, some people are actually going to extremes to retaliate. Cell phones are basically handheld two-way radios. And like any radio, the signal can be disrupted, or jammed.

## JAMMING BASICS

Disrupting a cell phone is the same as jamming any other type of radio communication. A cell phone works by communicating with its service network through a cell tower or base station. Cell towers divide a city into small areas or cells. As a cell phone user drives down the street, the signal is handed from tower to tower.



A jamming device transmits on the same radio frequencies as the cell phone, disrupting the communication between the phone and the cell phone base station in the tower.

It's called a denial-of-service attack. The jammer denies service of the radio spectrum to the cell phone users within range of the jamming device.

## **HOW IT WORKS**

Jamming devices overpower the cell phone by transmitting a signal at the same frequency and at a high enough power that the two signals collide and cancel each other out. Cell phones are designed to add power if they experience low-level interference, so the jammer must recognize and match the power increase from the phone.

Cell phones are full-duplex devices, which means they use two separate frequencies, one for talking and one for listening simultaneously. Some jammers block only one of the frequencies used by cell phones, which has the effect of blocking both. The phone is tricked into thinking there is no service because it can receive only one of the frequencies.

Less complex devices block only one group of frequencies, while sophisticated jammers can block several types of networks at once to head off dual-mode or tri-mode phones that automatically switch among different network types to find an open signal. Some of the high-end devices block all frequencies at once, and others can be tuned to specific frequencies.

To jam a cell phone, all you need is a device that broadcasts on the correct frequencies. Although different cellular systems process signals differently, all cell phone networks use radio signals that can be interrupted. GSM, used in digital cellular and PCS-based systems, operates in the 900-MHz and 1800-MHz bands in Europe and Asia and in the 1900-MHz (sometimes referred to as 1.9-GHz) band in the United States. Jammers can broadcast on any frequency and are effective against AMPS, CDMA, TDMA, GSM, PCS, DCS, iDEN, and Nextel systems. Old-fashioned analog cell phones and today's digital devices are equally susceptible to jamming.

The actual range of the jammer depends on its power and the local environment, which may include hills or walls of a building that block the jamming signal. Low-powered jammers block calls in a range of about 30 feet (9 m). Higher-powered units create a cell-free zone as large as a football field. Units used by law enforcement can shut down service up to 1 mile (1.6 km) from the device.



## **INSIDE A CELL PHONE JAMMER**

Electronically speaking, cell phone jammers are very basic devices. The simplest just have an on/off switch and a light that indicates it's on. More complex devices have switches to activate jamming at different frequencies. Components of a jammer include:

**Antenna:** Every jamming device has an antenna to send the signal. Some are contained within an electrical cabinet. On stronger devices, antennas are external to provide a longer range and may be tuned for individual frequencies.

**Circuitry:** The main electronic components of a jammer are:

- **Voltage-controlled oscillator** - Generates the radio signal that will interfere with the cell phone signal
- **Tuning circuit** - Controls the frequency at which the jammer broadcasts its signal by sending a particular voltage to the oscillator
- **Noise generator** - Produces random electronic output in a specified frequency range to jam the cell phone network signal (part of the tuning circuit)
- **RF amplification (gain stage)** - Boosts the power of the radio frequency output to high enough levels to jam a signal

**Power supply:** Smaller jamming devices are battery-operated. Some look like cell phones and use cell phone batteries. Stronger devices can be plugged into a standard outlet or wired into a vehicle's electrical system.

## **WHERE ARE CELL PHONE JAMMERS USED**

Cell phone jamming devices were originally developed for law enforcement and the military to interrupt communications between criminals and terrorists. The bombs that blew up commuter trains in Spain in March 2004, as well as blasts in Bali in October 2002 and Jakarta in August 2003, all relied on cell phones to trigger explosives. It has been widely reported that a cell phone jammer thwarted an assassination attempt on Pakistani President Musharraf in December 2003. When President Bush visited London in November 2004, it was reported that British police considered using jammers to protect the president's motorcade through London.

During a hostage situation, police can control when and where a captor can make a phone call. Police can block phone calls during a drug raid so suspects can't communicate outside the area. Cell phone jammers can be used in areas where radio transmissions are dangerous, such as areas with a potentially explosive atmosphere, such as chemical storage facilities or grain elevators. The TRJ-89 jammer from Antenna System & Supplies Inc. carries its own electrical generator and can block cellular communications in a 5-mile (8-km) radius.

Corporations use jammers to stop corporate espionage by blocking voice transmissions and photo transmissions from camera phones. On the more questionable end of the legitimacy spectrum, there are rumors that hotel chains install jammers to block guests' cell phone usage and force them to use in-room phones at high rates.

## LEGAL ISSUES

In the United States, United Kingdom, Australia, and many other countries, blocking cell phone services (as well as any other electronic transmissions) is against the law. In the United States, cell phone jamming is covered under the Communications Act of 1934, which prohibits people from "willfully or maliciously interfering with the radio communications of any station licensed or authorized" to operate. In fact, the "manufacture, importation, sale or offer for sale, including advertising, of devices designed to block or jam wireless transmissions is prohibited" as well.

Jamming is seen as **property theft** because a private company has purchased the rights to the radio spectrum, and jamming the spectrum is akin to stealing the property the company has purchased. It also represents a **safety hazard** because jamming blocks all calls in the area, not just the annoying ones. Jamming a signal could block the call of a babysitter frantically trying to contact a parent or someone trying to call for an ambulance.

The Federal Communications Commission is charged with enforcing jamming laws. However, the agency has not yet prosecuted anyone for cell phone jamming. Under U.S. rules, fines for a first offense can range as high as \$11,000 for each violation or imprisonment for up to one year, and the device used may also be seized and forfeited to the government.

In most countries, it is illegal for private citizens to jam cell phone transmission, but some countries are allowing businesses and government organizations to install jammers in areas where cell phone use is seen as a public nuisance. In December 2004, France legalized cell phone jammers in movie theatres, concert halls, and other places with performances. France is finalizing technology that will let calls to emergency services go through. India has installed jammers in parliament and some prisons. It has been reported that universities in Italy have adopted technology to prevent cheating. Students were taking photos of tests with their camera phones and sending them to classmates.

## ALTERNATIVES TO JAMMING

While the law clearly prohibits using a device to actively disrupt a cell-phone signal, there are no rules against passive cell-phone blocking. That means using things like wallpaper or building materials embedded with metal fragments to prevent cell-phone signals from reaching inside or outside the room. Some buildings have designed that block radio signals by accident due to thick concrete walls or a steel skeleton.

Companies are working on devices that **control a cell phone** but do not "jam the signal." One device sends incoming calls to voicemail and blocks outgoing calls. The argument is that the phone still works, so it is technically not being jammed. It is a legal grey area that has not been ruled on by the FCC as of April 2005.

## **LOTS MORE INFORMATION**

### **HOW CELL PHONE WORKS:**

Millions of people in the United States and around the world use cellular phones. They are such great gadgets -- with a cell phone, you can talk to anyone on the planet from just about anywhere!

These days, cell phones provide an incredible array of functions, and new ones are being added at a breakneck pace. Depending on the cell-phone model, you can:

- Store contact information
- Make task or to-do lists
- Keep track of appointments and set reminders
- Use the built-in calculator for simple math
- Send or receive e-mail
- Get information (news, entertainment, stock quotes) from the Internet
- Play simple games
- Integrate other devices such as PDAs, MP3 players and GPS receivers

But have you ever wondered how a cell phone works? What makes it different from a regular phone? What do all those confusing terms like PCS, GSM, CDMA and TDMA mean? In this article, we will discuss the technology behind cell phones so that you can see how amazing they really are.

## **HOW RADIO SCANNERS WORKS:**

The air around you are bursting with radio waves. You know that you can flip on the AM/FM radio in your car and receive dozens of stations. You can flip on a CB radio and receive 40 more. You can flip on a TV and receive numerous broadcast channels. Cell phones can send and receive hundreds of frequencies. And this is just the tip of the radio spectrum iceberg. Literally tens of thousands of other radio broadcasts and conversations are zipping past you as you read this article -- police officers, firefighters, ambulance drivers, paramedics, sanitation workers, space shuttle astronauts, race car drivers, and even babies with their monitors are transmitting radio waves all around you at this very moment!

To tap into this ocean of electromagnetic dialog and hear what all of these people are talking about, all you need is a scanner. A scanner is basically a radio receiver capable of receiving multiple signals. Generally, scanners pick up signals in the VHF to UHF range (see How the Radio Spectrum Works for details on these frequency bands).

Radio scanners are very portable and affordable. In this article, we will look at the basics of scanner operation, examine radio scanning as a hobby, and show you how to get started listening to public airwaves you may not have known existed!

### **HOW LOCK PICKING WORKS:**

Most people carry five to 10 keys with them whenever they go out. On your key ring you might have several keys for the house, one or two more for the car and a few for the office or a friend's house. Your key ring is a clear demonstration of just how ubiquitous lock technology is: You probably interact with locks dozens of times every week.

The main reason we use locks everywhere is that they provide us with a sense of security. But in movies and on television, spies, detectives and burglars can open a lock very easily, sometimes using only a couple of paper clips. This is a sobering thought, to say the least: Is it really possible for someone to open a lock so easily?

### **HOW RADIO WORKS:**

"Radio waves" transmit music, conversations, pictures and data invisibly through the air, often over millions of miles -- it happens every day in thousands of different ways! Even though radio waves are invisible and completely undetectable to humans, they have totally changed society. Whether we are talking about a cell phone, a baby monitor, a cordless phone or any one of the thousands of other wireless technologies, all of them use radio waves to communicate.

Here are just a few of the everyday technologies that depend on radio waves:

- AM and FM radio broadcasts
- Cordless phones
- Garage door openers
- Wireless networks
- Radio-controlled toys

- Television broadcasts
- Cell phones
- GPS receivers
- Ham radios
- Satellite communications
- Police radios
- Wireless clocks

The list goes on and on... Even things like radar and microwave ovens depend on radio waves. Things like communication and navigation satellites would be impossible without radio waves, as would modern aviation -- an airplane depends on a dozen different radio systems. The current trend toward wireless Internet access uses radio as well, and that means a lot more convenience in the future!

The funny thing is that, at its core, radio is an incredibly simple technology. With just a couple of electronic components that cost at most a dollar or two, you can build simple radio transmitters and receivers. The story of how something so simple has become a bedrock technology of the modern world is fascinating!



## **ADVANTAGES**

- ❖ It is very necessary using cell phone jammers in the most divine temples like Tirumala.
- ❖ We can provide security to V.I. Ps from the anti-social elements.
- ❖ By using cell phone jammers, we can maintain law and order for maintaining peace.
- ❖ By cell phone jammers we can't disturb other people in the public places like restaurants, shopping places.
- ❖ It is very necessary to use cell phone jammers in Naxal feared places. This helps the authorities to work their duty softly.
- ❖ By using cell phone jammers in the vehicles, we can overcome accidents problem which is very helpful to the people.

## **DISADVANTAGES**

- ❖ Cost oriented.
- ❖ Requires special hardware.
- ❖ People feel inconvenience.
- ❖ V.I.P.'s may lose some important calls.

## **CONCLUSION**

Cell phone jammers are very useful to the society from the anti-social elements. We can save our national leaders. we can restrict the communication network between the anti-social elements by using the cell phone jammers. Cell phone jammers prevent the students from carrying cell phones to the colleges. As everything goes fine, it is very necessary to implement in all the colleges.

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