

MOBILE PHONE SIGNAL JAMMER**C.Z. Zulkifli¹, M.T. Abu Seman², P. Asokumar¹**

¹Faculty of Act, Computing and Creative Industry,
Universiti Pendidikan Sultan Idris, 35900 Tanjong Malim,
Perak, Malaysia.

²School of Electrical and Electronic Engineering,
Universiti Sains Malaysia, Engineering Campus, 14300 Nibong
Tebal, Penang, Malaysia.

Corresponding Author's Email: chezalina@fskik.upsi.edu.my

ABSTRACT: A mobile phone which is also known as a cellular phone, cell phone which is a device that can make and receive telephone calls over a radio. Cell phones are everywhere these days. It is a very significant device because it is to be able to call anyone at anytime. Unfortunately, examination halls, movie theaters, mosques and hospitals all suffer from the spread of cell phones disturbances because not all cell-phone users know when to stop talking. On behalf of this problem a signal jammer is used to disrupt a mobile phone communication in selected areas. 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. Jamming devices overpower the cell phone by transmitting a signal on the same frequency and at a high enough power that the two signals collide and cancel each other out.

KEYWORDS: *Highway traffic flow; unmanned aerial vehicle; quadrotor; real time video*

1.0 INTRODUCTION

Cell phone jammer has been put into use in various places. However, the most popular cell phone jammer is low powered, it cannot cover an area such large places like a prison, a hospital, an oil field and so on. A high power cell phone jammer thus becomes a necessity to the places in high demand of safety. A high power cell phone jammer can be used to block the transmission and reception of signals in a large scale [1].

As it is known to us all, the radiation from the cell phones can exert influence upon our daily life. For example, in the hospital, the cell phones can affect the function of some highly sophisticated advanced equipment, for instance the cardiac pacemaker and the ECG recorder, which may lead to the wrong clinical diagnosis [2]. In the high-risk areas, such as the oil field and petrol station, the usage of cell phones may result in the explosion, which is unpredictably harmful. The criminals in prison may smuggle goods and do other evil things via cell phone communication [3].

Besides that, this mobile phone signal jammer is mainly designed to fit in place like mosques to allow people to perform prayers without any disruption of mobile ringing until the prayer is successfully completed. Mobile phones are full-duplex devices, which mean they use two separate frequencies, one for talking and one for listening simultaneously [4]. Some jammers block only one of the frequencies used by cell phones and some 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. Fewer complexes 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 [5]. To jam a cell phone, all you need is a device that broadcasts on the correct frequencies

for example in a mosque. Although different cellular systems process signals differently, all cell-phone networks use radio signals that can be interrupted.

In this research, we are using three types of mobile phone communication which are GSM, DCS and 3G types to block the frequency [6].

2.0 METHODOLOGY

The methodology chosen based on the model of ADDIE process and the important element involved in this research are further discussed.

This research is done successfully based on good management of the methodology where ideas are generated at the beginning and the analyzed with proper prospects and then finally implementing the ideas into this project by designing and building the project. Managing the methodology is the core part of this project.

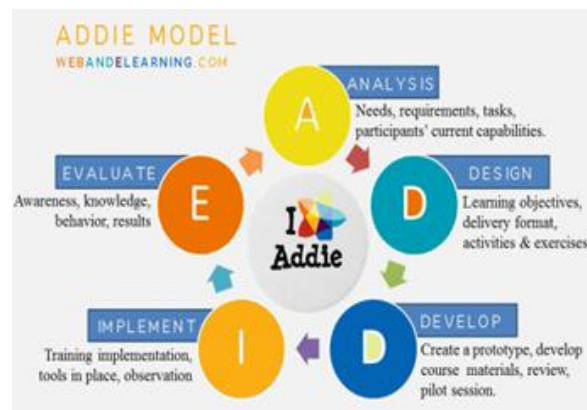


Figure 1: ADDIE model

For many years now, educators and instructional designers alike used the “ADDIE” Instructional Design (ID) method as a guide in designing and effectively tracking a research progress. “ADDIE” stands for Analyze, Design, Develop, Implement and Evaluate. This sequence, however does not impose a strict linear progression between each step. Rather, each stage is a clear instruction on its own. This means that even if the individual applies ADDIE at the middle of the project, it will still retain its value and be able to provide a sense of structure to the whole program.

This parameter is very important in our design, since the amount of the output power of the jammer depends on the area that we need to jam [7]. Later on we will see the relationship between the output power and the distance D . Our design is established upon 1 to 12 meters radius where the signal must 75dBm in the location. The jamming radius still depends on the strength signal in given area [8].

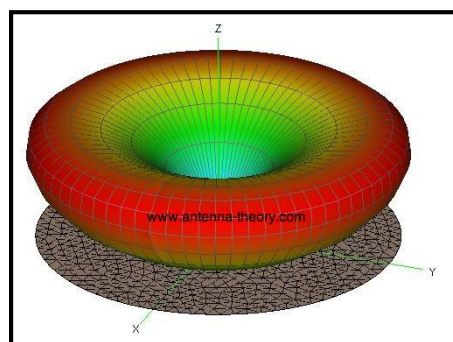


Figure 2: The monopole direction where the mobile Is jammed

3.0 RESULTS AND DISCUSSION

As we tested our jamming device, the result was a very success. The device was able to jam the effectively. The effective jamming range was around 10 to 12 meters. This is more than and very suitable for the location that we have proposed for this project implementation. The reason is that in our Calculations we considered the worst case of having the cell phone close to the base station. It is expected that as the distance between the cell phone and the base station increases, the effective jamming distance will increase [9]. This is due to the fact that the amount of power reaching the cell phone from the base station decreases as the cell phone moves farther from the base station. Table below shows the interference frequency that is tested for this project and the outcomes were successful.

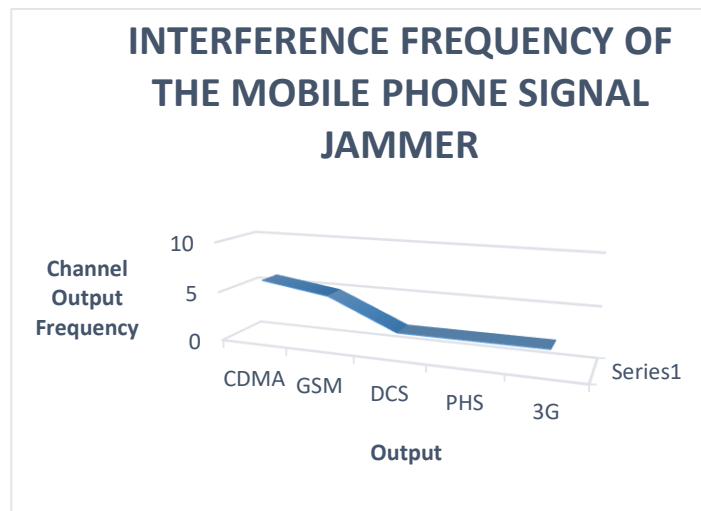


Figure 3: Table shows the Interference of Mobile phone signal jammer

Besides GSM, DCS is also tested where it is known as Digital Cellular System that operates within 1850 MHz to 1850 MHz. Finally 3G types of mobile phone is tested which is known as the 3rd generation of mobile telecommunications technology where operates within 2110 MHz to 2170MHz [10]. The average output rate of the mobiles tested was approximately 33dBm. 'dBm' is an abbreviation for the power ratio in decibels (dB) of the measured power referenced to one millwatt(mW). From the practical test effective range is 1 to 12 meters radius, and the signal must be 75dBm in the location where there are no disturbances or obstacles that blocks the transmission of the frequency signals [11]. The jamming radius still depends on the strength signal in given area. Therefore this jammer is suitable to be implemented on the targeted area for this project which is in Mosque.

4.0 CONCLUSION

In this research, which turned out to be a full success, we designed a device that stops phone ringing by disabling the signal of the mobile phone in that designated area. This device could be used in places where ringing is not desired at specific times, as these ringing may disturb people in such places. The designed device works in dual band. The research will be implemented in Mosques as we planned to maintain a peaceful and harmonious environment during performing ritual meetings there. This signal jammer will disable all the frequency of mobile phone in the mosque which it is within the range of 1 to 12 meters [12].

We started by studying the jamming techniques, and GSM system to find the best jamming method. The system block diagram was also specified in this stage. We searched for components that are needed for building this device, and specified the main components which were used in this project [13]. Finally, we assembled all the circuits like jammer circuit, microcontroller circuit, receiver circuit and

charging circuit that's connected together and the jammer is tested. Fortunately, we got positive results. Both bands were fully jammed. We hope that this project will be useful for the community where such jamming devices are needed.

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