

## TORRENT DOWNLOADING BY REMOTELY ACCESSING A PC USING MOBILE PHONE

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### ABSTRACT

Remote Torrent Download Manager (RTDM) is to implement a system which provides access to home computer remotely through a mobile phone. By using this system user can control the on/off function of the computer and also can gain access to the home PC and download files, documents, movies, etc. This application allows downloading files from home Personal Computer (PC) to user's mobile phone remotely. The main purpose of creating this project is, in case if the user forgets to turn off the computer and if he is not close by he could turn off the PC remotely by a mobile phone and also the user could switch on the PC and download files through torrent application. The system is developed in three components, such as the Power on/off device, remote torrent downloader and the remote file retrieval manager. Here the device is added to PC and controlled by a smart phone ( Android mobile phone ). By using this system the user could save time and money by accessing the computer from long distance. As for now a day's Remote control based on mobile devices as mobile phones, are considered more and more useful in many computerized applications.

**Key words** – Torrents, Android OS, JSON (Java Script Object Notation)

### 1. INTRODUCTION

Mobile phones have become the most popular hand-held communication device of humans today, which is able to invade daily routine behavior of all kinds. RTDM is to implement a system which provides access to home PC remotely through a mobile phone. By using this system user can mainly control the on/off function of the computer and also can gain access to the home PC and download files, documents, movies, etc through torrent application. Also files could be retrieved to user's mobile phone remotely.

Torrent is data about a target file, though it contains no information about the content of the file. The only data that the torrent holds is information about the location of different pieces of the target file. Torrents work by dividing the target file into small information chunks, found on an unlimited number of different hosts. This helps to download large files quickly.

This research project (RTDM) is an attempt to develop a service, which integrates latest technologies to provide the user with a remote access to the PC, download torrent files and retrieve them using an Android mobile phone.

Android is a Linux based operating system primarily designed for mobile devices such as

smart phones and tablet computers utilizing ARM processors. Today Android based smart phones are gaining popularity among general public because of the many facilities provided for users.

The primary goal of the research is to assist a wide range of IT related people globally accessing files from their personal archives located in a remote computer. The aim of the project is to make a secure communication between the user and the remote home/office computer with the help of the mobile phone without any intervention of a second person [1]. This system can be operated by a non technical person.

This application also requires a hardware device connected to the Home PC to enable the switch on/off facility through a mobile phone. The aim of the research is to do only a minimal change to the CPU and also implement the device with minimum of cost and using only a very basic phone to retrieve the commands.

The expected outcomes of the research on RTDM service are,

- Allows switch on/off home PC remotely
- Connect to home computer remotely
- Allows to start, add, stop, remove torrent files
- Search torrents, set torrent priorities
- Retrieve files from home PC remotely

## 2. METHODOLOGY

RTDM system consists of mainly three parts,

1. Power on/off device
2. Remote Torrent Downloader
3. Remote File Retrieval

### 2.1. Power on/off device

The on/off device is used to switch on/off the computer remotely and the user has to give a missed call through a mobile phone. This missed call will be identified by the mobile (which is connected to the device) and it will pass the command to the external device. The device identifies the command and sends the correct signal to the home computer's on/off button. After switching on the computer remotely Torrent downloads and file retrievals could be done remotely [2]. When using this system the mobile phone has to be connected to General Packet Radio Service (GPRS) or Wi-Fi connection. The device circuit diagram is shown in Figure 1.

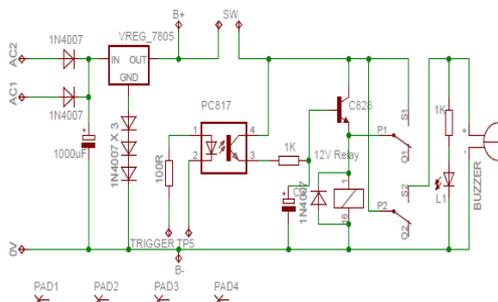


Figure 1: Circuit diagram of on/off device

This circuit is the main unit that is connected to the mobile phone at home and to the PC. When the user sends a command through his Android phone to the mobile at home that is connected to the PC via ON/OFF circuit at first an analog signal is sent to the circuit. Then this signal is identified by the IC to verify on/off function. After the verification (on/off) the analog signal will be converted to a digital signal and will be sent to the PC. This will be done by transmitting the signal to the power on/off switch in the computer. The circuit will be connected to the PC via USB cable and will be powered by the CPU.

Advantages of this device,

1. Turn on/off the home computer at a remote location

2. Saves power
3. Reduce cost and time

An application is needed to connect the PC at home with an Android phone. This was done by implementing a system in the user's mobile phone by using the correct IP address and the port number of the home PC. Once the IP address and the port number are entered the user should be able to connect to the home PC remotely through GPRS from his mobile. After connecting the user can download any file or movie through the torrent software in the computer.

### 2.2. Torrent Downloader

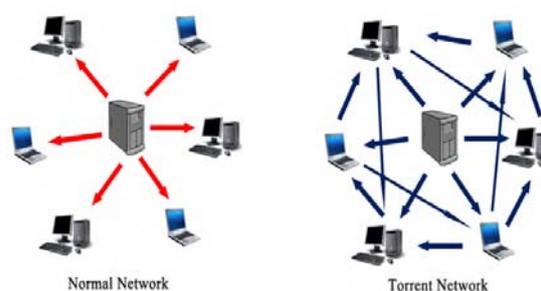


Figure 2: Difference between normal network and Torrent network

The above figure shows the main difference between the communication Links in a normal network and a torrent network. The Torrents are widely known as an area where people can download most of the software, music, videos, movies, etc.

When using this system user is enabled to download files to user's home computer remotely through Torrents. The user could send the URL of the Torrent file needed to be downloaded remotely through user's Android phone. The main functions of Remote Torrent Downloader are as follows.

- a. Start
- b. Stop
- c. Add
- d. Pause
- e. Resume
- f. Search
- g. Prioritize
- h. Remove

The user is also able to view current status of the files been downloaded through user's Android mobile phone remotely. Waterfall model is used to develop this project and also MVC model,

JSON (Java Script Object Notation) method, abstract factory method is used to implement this system.

### MVC (Model View Controller) method

The system was organized by using POM technique. It relates with Spring MVC. One of the best things about Spring's POM is that it provides a bunch of useful Spring project templates that the developer can use to generate empty or stub projects from which to start developing a code [3]. This method is used because it is easy to integrate all three components at last, because all these three main components have to done in parallel way and Spring MVC. It easy to extend the system further in future by using Spring's Android Mobile MVC framework.

### JSON (Java Script Object Notation) method

The second core element was the JSON plugging. Using a JSON files completed the other parts of the implementation. When user sends the requests to the web page to access the Web API, it returns values in the JSON format. This suitable plugging was added to the application so that it passed the data from JSON file method [4].

## 2.3. Remote File Retrieval

When user needs to retrieve a file to user's mobile user has to send a message from user's mobile to home PC. But this message is actually sent to the server. After the message is received, the server will identify the message and the user request will be processed. Then file will be searched through a search mechanism in the server which is located in the home computer. After the file is located the server program will send the requested file to user's mobile through HTTP protocol [5].

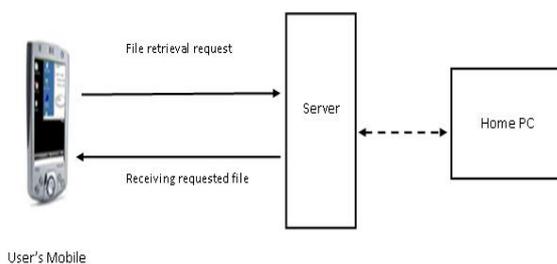


Figure 3: File transferring procedure

To get this process done, the user's mobile has to be connected to GPRS or a Wi-Fi connection. And the home computer should be connected to an internet connection. The router which is

connected to the home computer, should be port forwarded with the local host IP address.

Main parts of the Remote File Retrieval function are as follows:

**Connect to PC** allows user to connect with the home PC through IP and port.

**Send Message** allows user of the RTDM service to send a message including file path and extension of the file. If user does not know exact file location in home PC the user could browse the partitions of the home computer to locate the file needed to be retrieved.

**Search and locate file** search the files which is stored in the PC with the requested file extension.

**View Results** will show the results of the files for the requested file extension.

**Download file** allows downloading the requested file to user's mobile phone.

The main objective of the Remote File Retrieval function is to provide secure, reliable, efficient and easy method to retrieve files from home computer to user's android phone.

## 3. RESULTS AND DISCUSSIONS

Application Testing is a very important section during the whole development process. This application was divided into small components at the beginning. The unit test was done to ensure the proper functionality of those individual components. The purpose of unit testing is to isolate each part of the application and ensure that the individual parts are performing accurately.

When the system was completely integrated the system testing was done. As a rule, system testing takes, as its input, all of the "integrated" software components that have successfully passed integration testing and also the software system itself integrated with any applicable hardware system. System testing is performed on the entire system in the context of a Functional Requirement Specification. The System testing is done by installing the application to the phone using a PC Suite for the mobile and using the WLAN or external IP address.

## 4. CONCLUSION

RTDM Service is a unique product which allows a user to retrieve a file stored in a remote

computer as well as enables user to search, add, start, pause, stop and prioritize torrent files. From design to implementation of this Service the development team depended heavily on the research. RTDM Service is a combination of wide range of technologies including Android.

At present, the method of torrent download has many managing difficulties and limitations. Torrent downloading is only managed from computers. It is not done remotely. Therefore Remote Torrent Download Manager was designed as a solution to enable the user to manage torrent with ease. As a solution the uTorrent developers provided a Web API. This enabled users to manage their torrents remotely. Simply it allows the user to start a download in his system without having a direct physical connection to the system. As the same it allows the user to stop, pause, limit (the bandwidth and seeds) the download which has already started in the system.

Many people in the world use torrents to download various things. The main problem is that the users do not have proper software to manage torrents remotely. The main goal was to deliver a product with pure quality and a system which is efficient and accurate and to provide maximum user friendliness.

The limitations of the system were that it only works for mobiles having Airtel service connections. This is because the data headers have a simple format, that minimum headers are stripped when encoding the username/password pair.

As for future work it is planned to develop a system to work on any type of network connection, especially for computers that get internet connection using dongles. Since there are other operating systems in the market it is planned to develop a system to suit other operating systems as for an example Macintosh operating system. So many people could benefit from this new product.

## 5. REFERENCES

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