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File Sharing Application: Turbo Share

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Abstract
Recently, Smartphone users have frequent need for share files and data such as (applications, audio, video, images even contacts) with other Smartphone users having same type of compatible device on the go, there are various free and paid file sharing applications available in the market for this very purpose, these file sharing applications mainly use WLAN (Wi-Fi Hotspot) for sharing files by creating an Ad-hoc wireless network and share files with other users within their vicinity. Sharing data across different devices such as Android, iOS, Mac, and PC used to be a very tedious and time-consuming process. The traditional methods of file sharing such as Bluetooth, Online Storage or cable transfer are not only slow but many times different devices do not support these methods of file transfer across different platforms. In this project we describe the design and work flow of our application TURBO SHARE. It uses latest Wifi Hotspot Technology to send and receive the Files with the application, you do not have to worry about the file format you want to transfer as well. many applications only allow you to transfer data of a specific format. with turbo share this does not matter and whether it be a .doc or .mp3 you can very easily transfer your files through this application.
Keywords: *SQLite, Dependencies, API, Constraint Layout, Wifi Hotspot, Bluetooth, QR Code*

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I. INTRODUCTION

Smartphone users have frequent need for share files and data such as (applications, audio, video, images even contacts) with other Smartphone users having same type of compatible device on the go, there are various free and paid file sharing applications available in the market for this very purpose, these file sharing applications mainly use WLAN (Wi-Fi Hotspot) for sharing files by creating an Ad-hoc wireless network and share files with other users within their vicinity. Sharing data across different devices such as Android, iOS, Mac, and PC used to be a very tedious and time-consuming process. The traditional methods of file sharing such as Bluetooth, Online Storage or cable transfer are not only slow but many times different devices do not support these methods of file transfer across different platforms.

So there was a Need for a App that Not only Solve the Issue but also Give User a Single Platform for all their sharing Need. That gave us the Idea of TurboShare. An all in one app to solve the issues of the user for file sharing. It uses latest Wifi Hotspot Technology to send and receive the Files with the application, you do not have to worry about the file format you want to transfer as well. many applications only allow you to transfer data of a specific format. with turbo share this does not matter and whether it be a .doc or .mp3 you can very easily transfer your files through this application.

1.1.1 Overview

In today's world, there is dominance of Chinese apps in sharing software market. these apps are full of bloatware and adware. This can also harm your device in one way or other. and that apps are also not build on advanced and new technologies so we are here with our app which is fast and free from bloat ware paid version of our app is free of adware also,we provide industry grade fast sharing which is quit faster then available alternatives. Our app works on Advance sharing technology which uses hotspot and Bluetooth simultaneously for sharing apps and files which makes it super fast and reliable for sharing.

Second objective was to give the users different visualizations of their file system. Usually in a file sharing website, users will be given only one option where they can view their files and folders in the traditional windows style folder view i.e. where they have the option to sort their files and folders based on size, type, and time uploaded etc, and navigate through their file system by clicking on the folders. In this website, users were given different visualizations of their file system i.e. one traditional windows style folder view with post backs as seen in other similar websites, three AJAX based windows style folder view with no post backs and additional functionalities like right click menus, drag and drop functionalities, and two space-constrained hierarchical visualizations of their file system with which users can know how their files and folders occupy their allotted space.

Third objective was to analyse the issue of file storage. Two common places where files can be stored are database and the web server. In the first option, files can be stored as BLOBs (Binary Large OBjects) which is the place for storing huge files in the database. Second option is to store the file in the file system on the web server and to store a pointer to the file location in the database. This report analyzes both options and discusses the advantages and disadvantages of both techniques

PROJECT AIMS:

- Clean User Experience: The most common problem users face while using File share applications is Annoying Advertisements. We don't Put Aggressive ads Giving user a Ad Free Application Interface.
- Good Transfer Speed: The average transfer speed of our application is 6 Mbps and the max is 22 Mbps. Which is Considerably a Great speed as compared to existing application in the Market
- Large File Transfers: We give users a File Transfer limit of Size upto 16 Gb which is more than most of the existing File transfer Application.

1.1.2 Purpose

There are other applications in the market as well to name some of them are Most Popular Shareit, Zapya, Xender, ShareMe(Formerly known as Mi Drop). They offer a good File transfer Experience but they lag in on feature or the other. Some have Good UI , some have Great speed while other is good in discovering the nearby Devices. But one thing common among all these applications are annoying ads. Ads are very crucial part for the Revenue but ruining the User Experience is not a Good Strategy. Unlike other application where there are ads and too many features TurboShare Focuses on a simple yet Interactive User Interface and a clean User Experience. Where there are no annoying Advertisements and unnecessary Features that user has nothing to do With. Turbo Share Focuses on the Speed and a good User Experience. Turbo share provides great speed in file transferring. In most of the File transfer application there is a limit in file size transfer which most of them have kept till 8 gb a file, whereas we have increased it to the maximum of 16 gb,. Which gives user a larger boundaries to play.

1.1.3 Objective

The project aims and objectives that will be achieved after completion of this project are discussed in this subchapter. The aims and objectives are as follows:

- Sharing multiple File formats by one click.
- Users can see the File shared history
- Super fast transfer speed to save user time.
- To compare different File transfer applications.
- To Check the average speed of the File Transfer.

II. PLATFORM AND TECHNOLOGY USED

2.1 Android

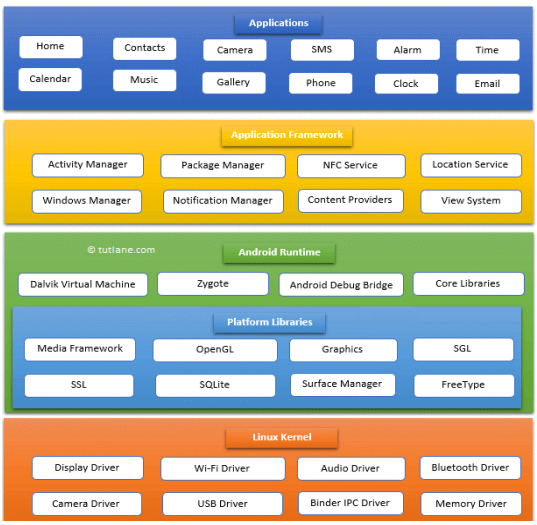


Fig. 1: Android Architecture

Android architecture includes a variety of components to meet the demands of any Android device. Android software includes an open-source Linux Kernel with a suite of C/C++ libraries that are accessed via application framework services. Among all the components, the Linux Kernel delivers the primary functionality of the operating system to smartphones, while the Dalvik Virtual Machine (DVM) offers a basis for executing an Android application.

1. Linux Kernel

Linux 3.6 is near the bottom of the layers, with around 115 fixes. This offers a degree of abstraction between the device hardware and includes all of the necessary hardware drivers such as camera, keyboard, display, and so on. Furthermore, the kernel handles all of the things that Linux excels at, such as networking and a huge number of device drivers, which make connecting to peripheral hardware a breeze.

2. Libraries

On top of the Linux kernel, there is a set of libraries that includes the open-source Web browser engine WebKit, the well-known library libc, the SQLite database, which is a useful repository for storage and sharing of application data, libraries to play and record audio and video, SSL libraries responsible for Internet security, and so on.

3. Android Runtime

This is the third component of the architecture, and it is accessible from the bottom of the second stratum. This section contains a critical component known as the Dalvik Virtual Machine, which is a kind of Java Virtual Machine specifically created and optimized for Android. The Dalvik virtual machine makes advantage of Linux fundamental characteristics such as memory management and multi-threading, which are inherent in the Java programming language. Every Android application may operate in its own process, with its own instance of the Dalvik virtual computer, thanks to the Dalvik VM. The Android runtime also includes a set of fundamental libraries that allow Android application developers to create Android apps in the standard Java programming language.

4. Application Framework

In the form of Java classes, the Application Framework layer provides various higher-level services to applications. These services may be used by application developers in their apps.

The following major services are included in the Android framework:

a) Activity Manager

The Activity Manager manages the whole application lifecycle and activity stack.

b) Content Provider

Content Providers enable apps to publish and share data with one another.

c) Resource Manager

Access to non-code embedded resources like as strings, colour settings, and user interface layouts is provided through the Resource Manager.

d) Notification Manager

Notifications Manager enables programmers to show the user alerts and notifications.

e) View System

A view system is an extendable set of views that is used to develop application user interfaces.

5. Applications

The top layer of Android architecture is applications. Pre-installed programmers like as home, contacts, camera, gallery, and so on, as well as third-party applications downloaded from the play store such as chat apps, games, and so on, will be put solely on this layer. It uses the classes and services supplied by the application framework to execute within the Android run time.

2.2 Android Studio

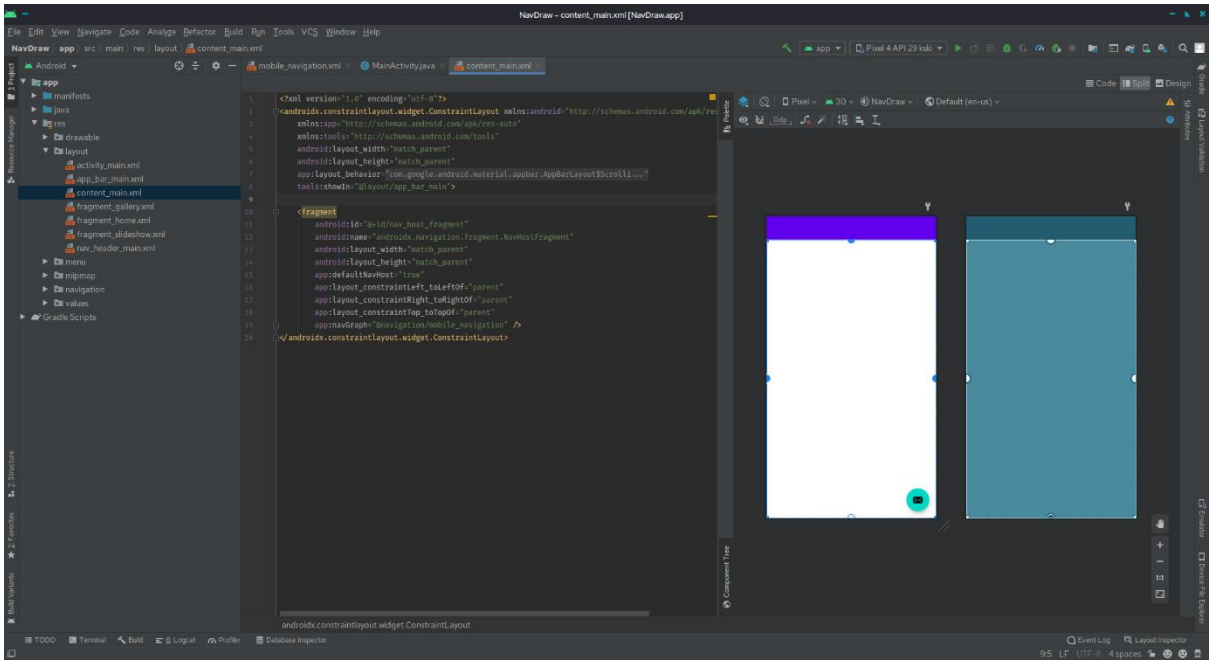


Fig.2: Android Studio 2021.1.1 running on Windows

2.3 Java

Fig. 3: Java Version 8

Java is a programming language as well as an operating system. Java is a high-level programming language that is powerful, object-oriented, and secure. Java was created in 1995 by Sun Microsystems (which is now an Oracle company). James Gosling is often regarded as the "Father of Java." It was called Oak before Java. Because Oak was already a registered firm, James Gosling and his team renamed it Java.

It is a programming language that may be used for a variety of purposes designed to allow programmers to write once and run anywhere (WORA), which means that generated Java without the requirement for recompilation, code can execute on any platform that supports Java. Java programmes are often converted into bytecode capable of running on any Java virtual machine (JVM), independent of computer architecture. Java's syntax is comparable to those of C and C++, although it has fewer low-level features than any of them. The Java runtime provides dynamic features (such as reflection and runtime code change) that traditional compiled languages do not. J2EE offered technology and APIs for corporate applications that normally operate on servers, whereas J2ME had APIs tailored for mobile apps. J2SE was the moniker given to the desktop version.

2.4 SQLite Database

SQLite is a library that runs in the background enables a serverless, transactional SQL database engine with zero setup. It is a zero-configuration database, which means that, like other databases, you do not need to setup it on your system. SQLite engine is not a stand-alone process like other databases; it may be linked statically or dynamically with your application depending on your needs. SQLite directly accesses its storage files. SQLite supports bindings for a wide range of computer languages. It follows PostgreSQL syntax in general but does not impose type checking. This implies that, for example, a string can be inserted into a column specified as an integer. Prior to each release, SQLite does automatic regression testing. SQLite versions have had 100 percent branch test coverage, one of the components of code coverage, since the August 10, 2009 release of SQLite 3.6.17. The testing and test equipment are both free and commercial.

SQLite is incredibly tiny and light weight, taking up less than 400KiB when fully configured and less than 250KiB when optional features are disabled. SQLite is self-contained, which means it does not require any external dependencies. SQLite transactions are completely ACID-compliant, which allows for secure access from different processes or threads. SQLite is developed in ANSI-C and has a basic and straightforward API. SQLite's release includes a standalone command-line tool. It is capable of creating a database, defining tables, inserting and changing rows, running queries, and managing a SQLite database file. It also functions as a model for developing SQLite-based apps.

III. LITERATURE REVIEW

In the last few years, there has been a dramatic shift in information technology. This includes various ways in which files can be shared and stored. Android OS is a the latest mobile OS that has been gradually taking over the ever-expanding market share. In the last few years, there has been a dramatic shift in information technology. Easy to use and easy to develop for and open-source, it has picked up a following of developers who want to create content for the masses. Cloud computing is known as the next big step for all forms of standard technology use. From businesses, to non-profit organisations, to individual users, there seems to be a variety of programs that can use cloud computing to provide a better, faster, and smarter computations. This paper aims to combine the two, build a cloud-based Android system, and give users the power of cloud computing in the palm of their hand.

The performance of mobile devices, mainly smartphones, has improved rapidly over the past years. Many users use high-performance smartphones, and use content on smart phones longer than other devices. As a result, users are constantly sharing content and file sharing requirements through enhanced calls have increased dramatically. Inorder to overcome such problems, we bring an application for seamless file sharing for the Android devices. We anticipate that the proposed pplication could be reliable file sharing and cost effective solution between mobile devices.

3.1 File Sharing User Base Worldwide

In this Section, a comparative study and analysis of three commonly used file sharing mobile applications namely SHAREit, Zapya and Xender has been done that run over Android platform and most commonly used by smart phone users. Current study has been restricted to these three mobile applications because of obvious limitations.

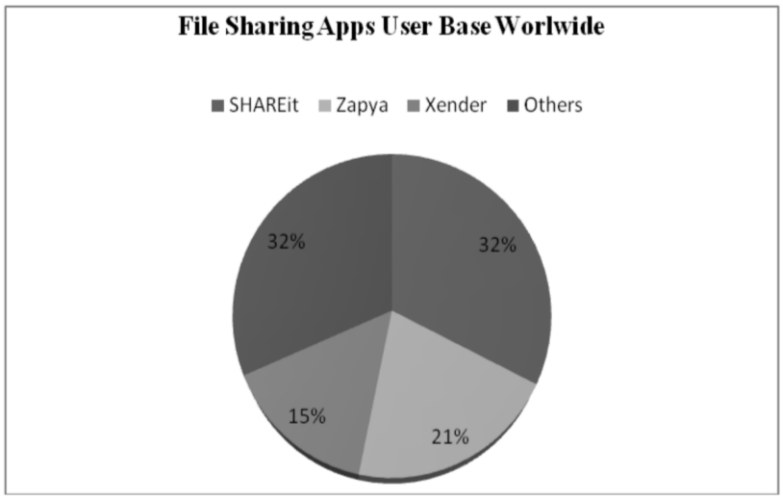
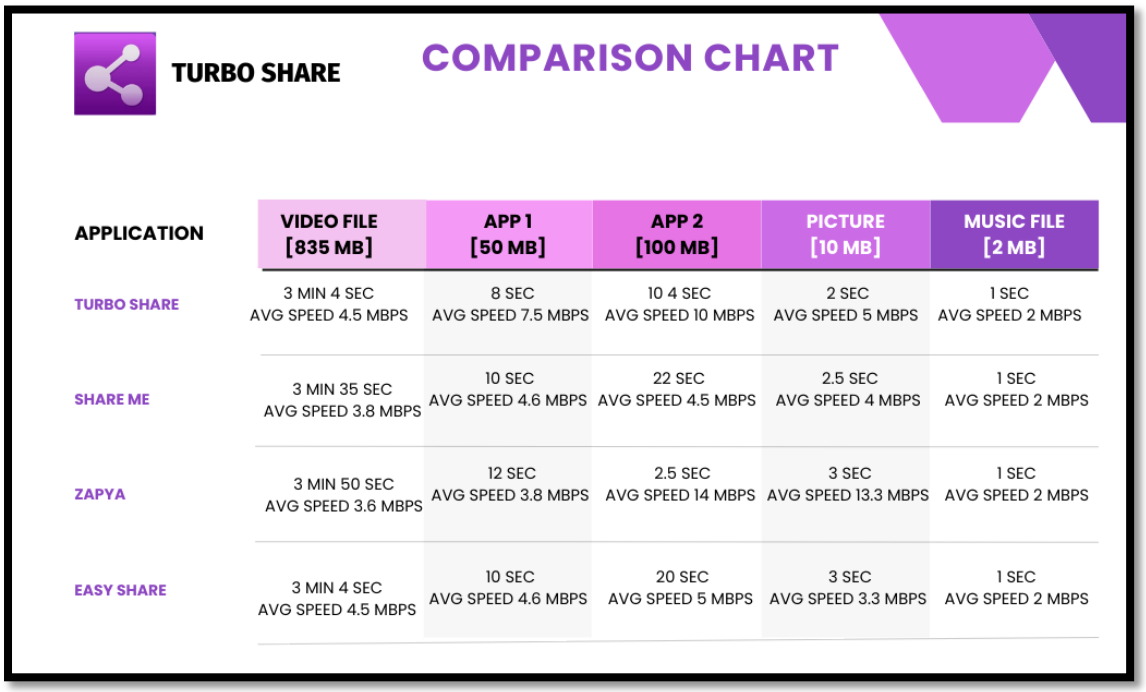


Fig. 4: File share Apps user Worldwide

3.2 COMPARATIVE ANALYSIS OF FILE TRANSFER SPEED OF SHARING APP

In this section, the file sharing applications namely SHAREMe, Zapya, Easy Share and Turbo Share has been compared, the comparison of these file sharing applications is based on the file transfer speed of different File types. Such as Application, Music, Photos etc.



TURBO SHARE

COMPARISON CHART

APPLICATION	VIDEO FILE [835 MB]	APP 1 [50 MB]	APP 2 [100 MB]	PICTURE [10 MB]	MUSIC FILE [2 MB]
TURBO SHARE	3 MIN 4 SEC AVG SPEED 4.5 MBPS	8 SEC AVG SPEED 7.5 MBPS	10 4 SEC AVG SPEED 10 MBPS	2 SEC AVG SPEED 5 MBPS	1 SEC AVG SPEED 2 MBPS
SHARE ME	3 MIN 35 SEC AVG SPEED 3.8 MBPS	10 SEC AVG SPEED 4.6 MBPS	22 SEC AVG SPEED 4.5 MBPS	2.5 SEC AVG SPEED 4 MBPS	1 SEC AVG SPEED 2 MBPS
ZAPYA	3 MIN 50 SEC AVG SPEED 3.6 MBPS	12 SEC AVG SPEED 3.8 MBPS	2.5 SEC AVG SPEED 14 MBPS	3 SEC AVG SPEED 13.3 MBPS	1 SEC AVG SPEED 2 MBPS
EASY SHARE	3 MIN 4 SEC AVG SPEED 4.5 MBPS	10 SEC AVG SPEED 4.6 MBPS	20 SEC AVG SPEED 5 MBPS	3 SEC AVG SPEED 3.3 MBPS	1 SEC AVG SPEED 2 MBPS

Fig. 5: Comparison Chart of Turbo share

IV. USE-CASE DIAGRAM

At its most basic, a use case diagram is a representation of a user's interaction with the system that depicts the specifications of a use case. A use case diagram can depict the various types of system users and the various ways in which they interact with the system. This type of diagram is typically used in conjunction with a textual use case and is frequently accompanied by other types of diagrams. Because of their simplicity, use case diagrams may be an effective tool for stakeholder communication. The designs seek to simulate the real environment and give a perspective for stakeholders to comprehend how the system works will be constructed.

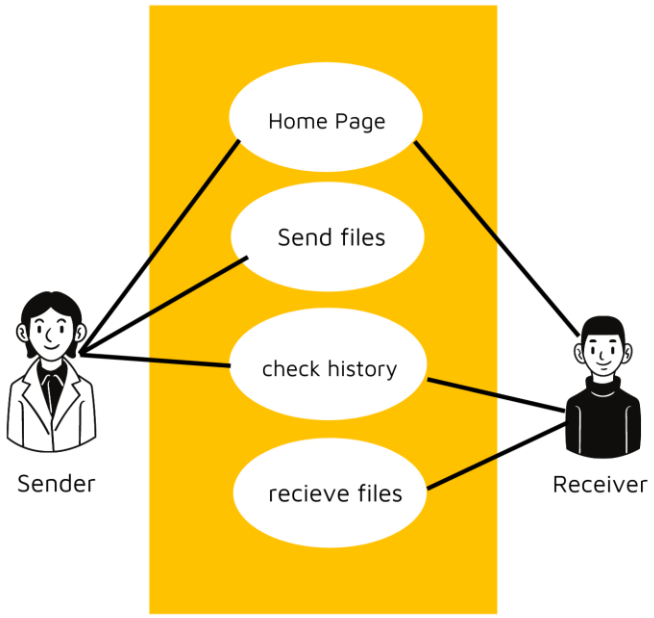


Fig. 6: Use Case Diagram of Turbo Share

V. OUTPUT OF OUR APPLICATION

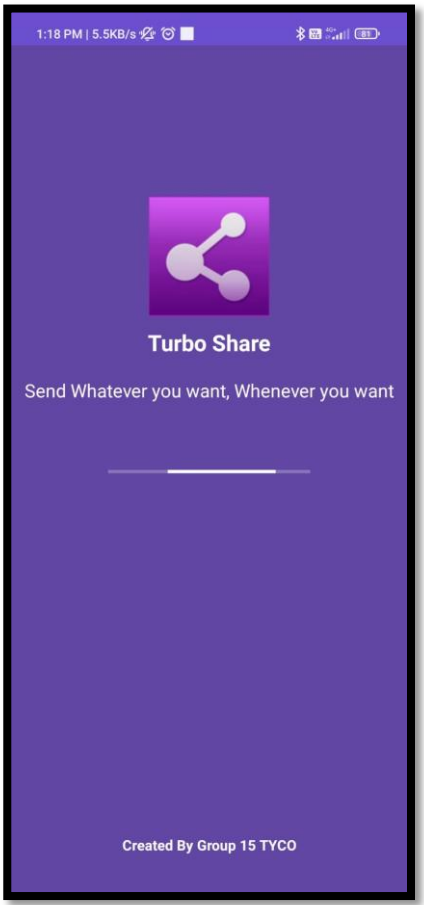


Fig. 7: Welcome Screen

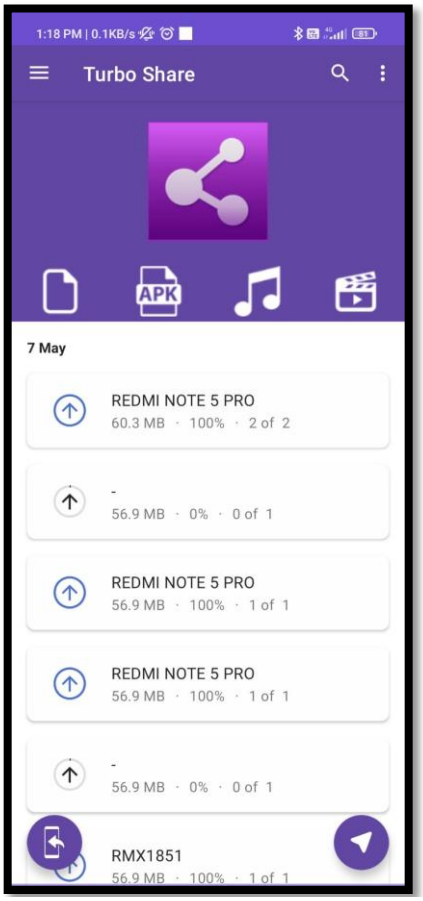


Fig. 8: Home Screen

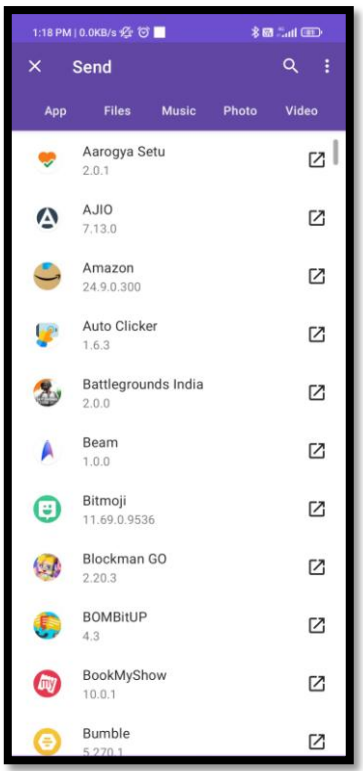


Fig. 9: App selection Screen

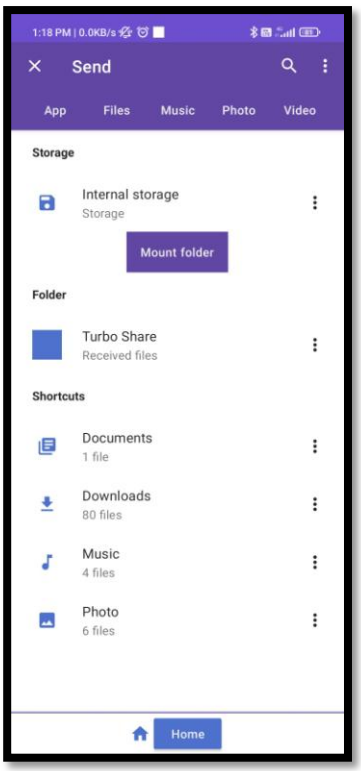


Fig. 10: File Selection Screen

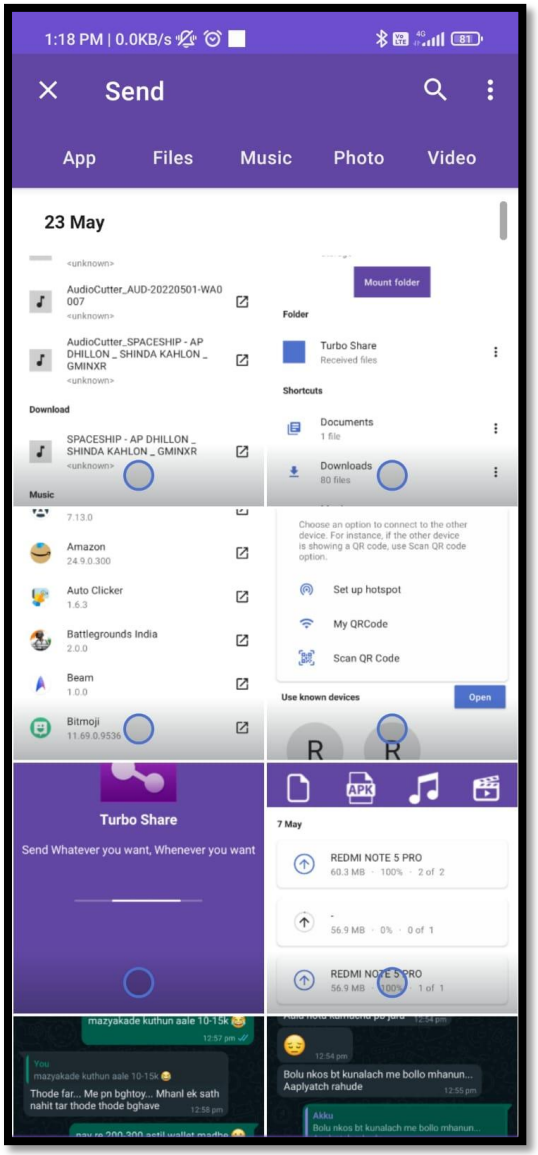


Fig. 11: Photos Selection Screen

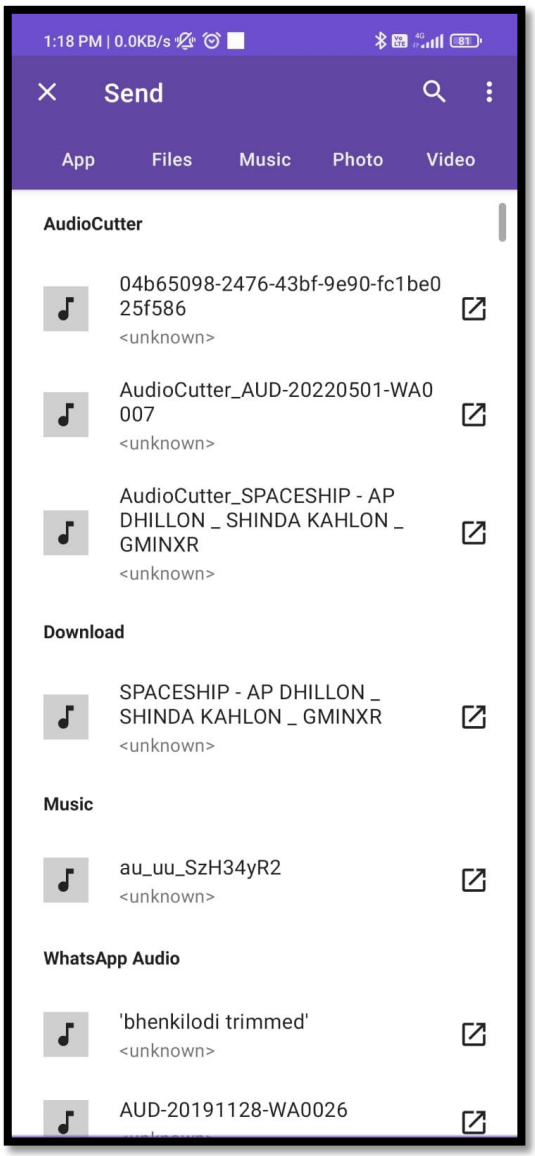


Fig. 12: Music Selection Screen

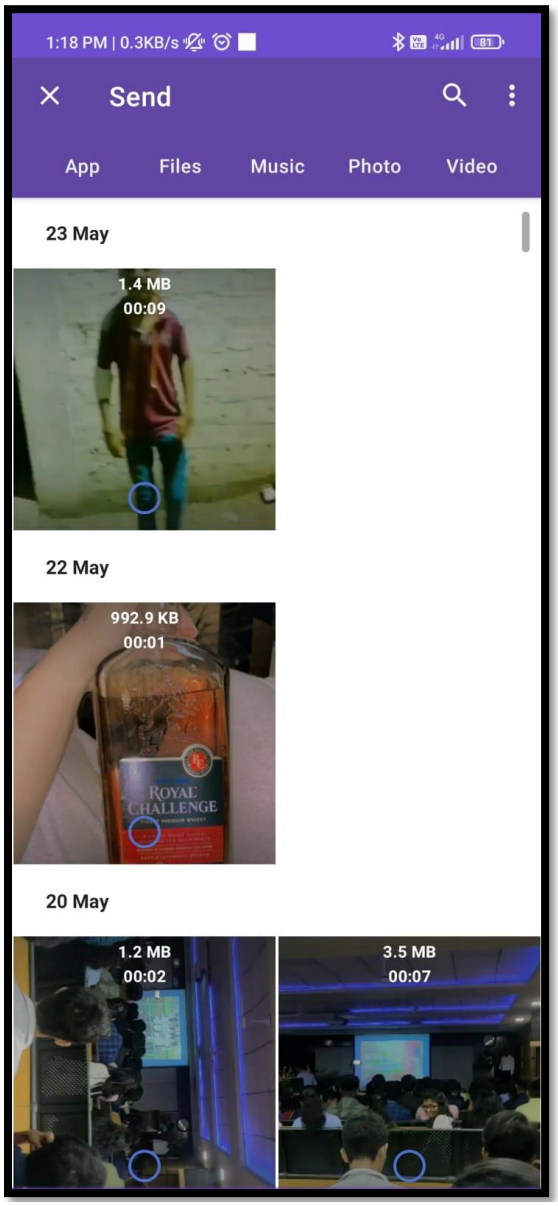


Fig. 13: Video Selection Screen (Before)

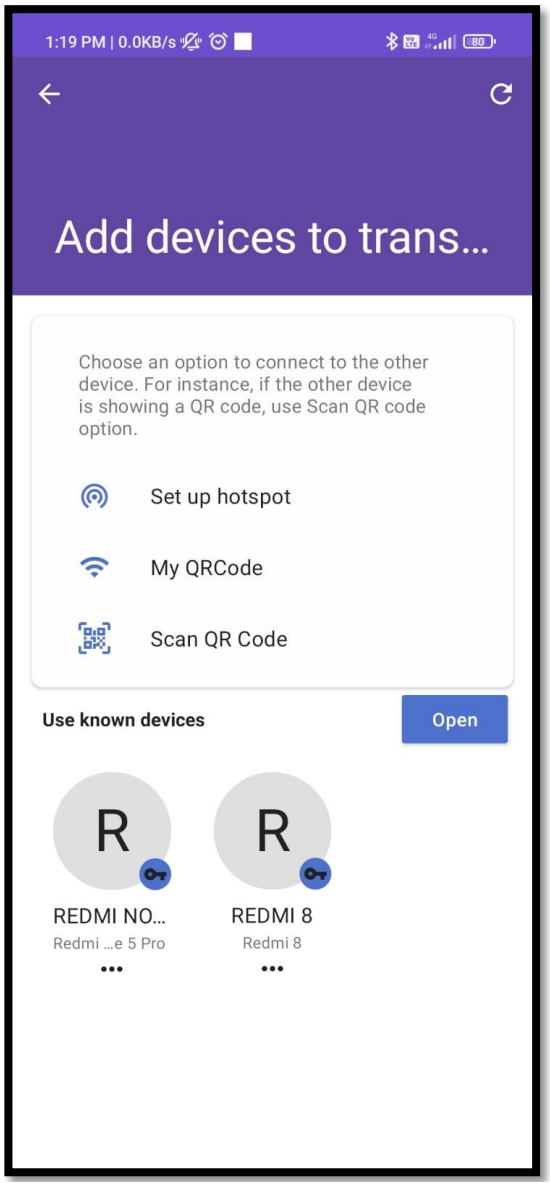


Fig. 14: Selecting Devices for Transfer Files Screen

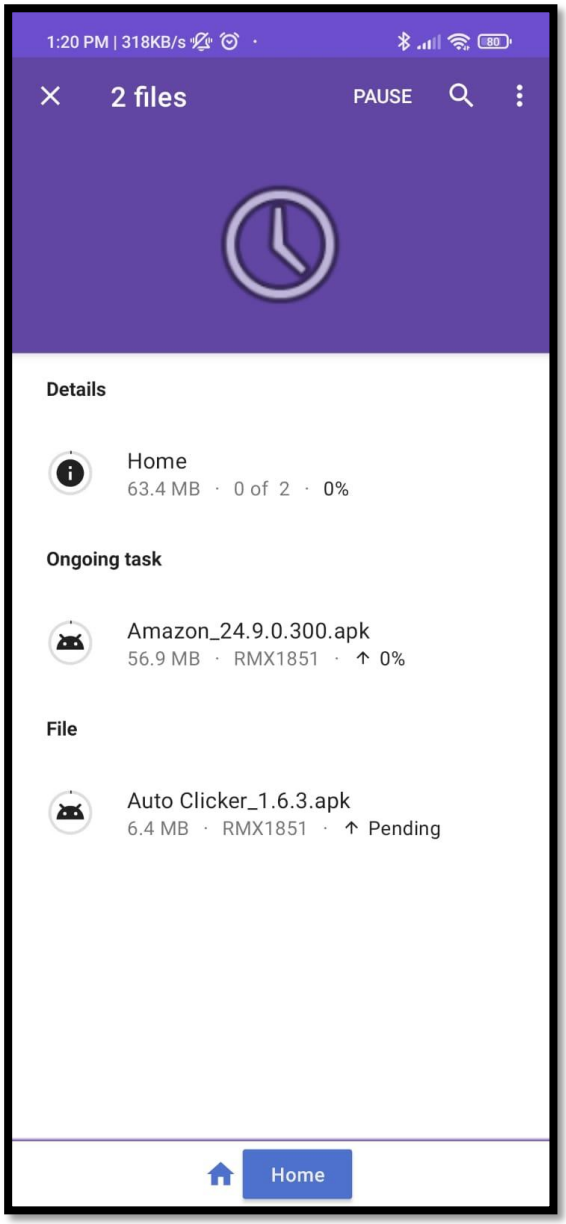


Fig. 15: File Transfer Progress Screen

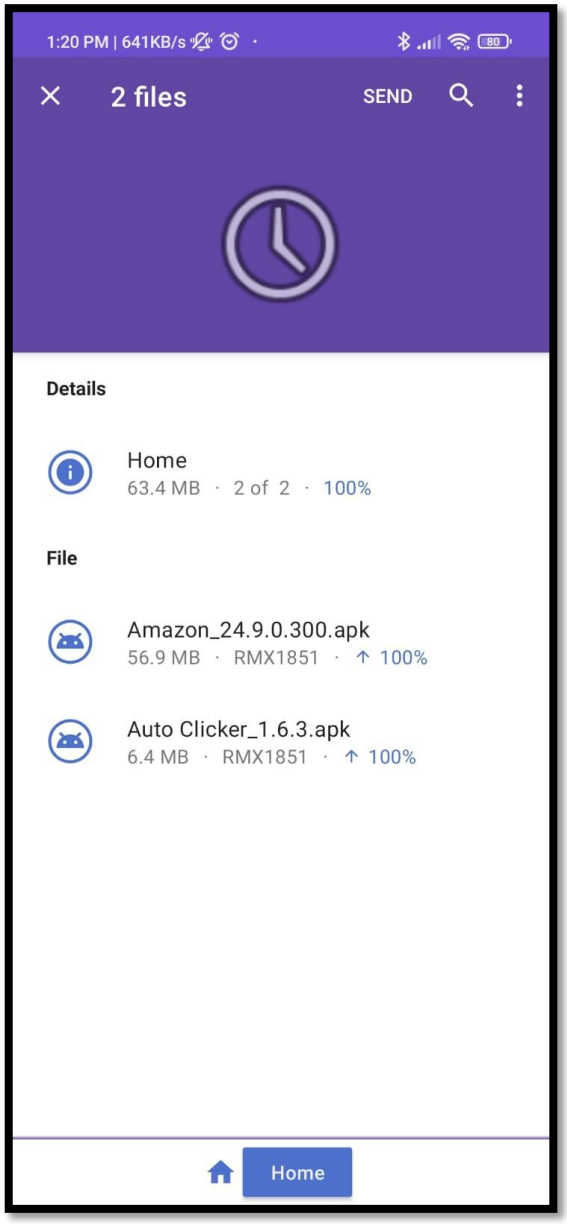


Fig. 16: FileTransfer Completed Screen

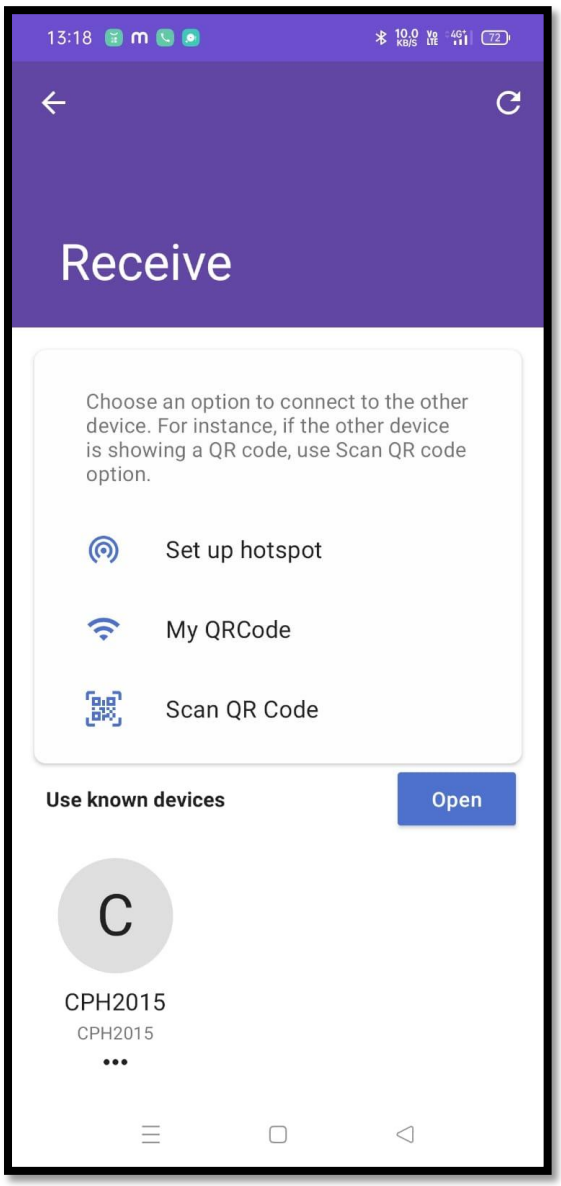


Fig. 17: Receiver Screen

Fig. 18: Generated QR for File Transfer

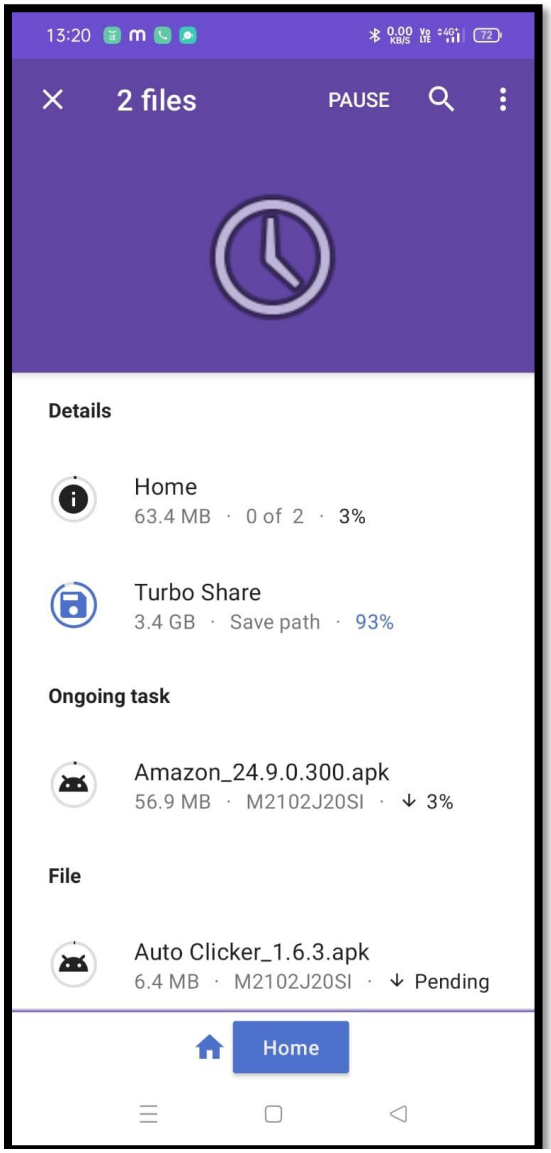


Fig. 19: Files Receiving Progress Screen

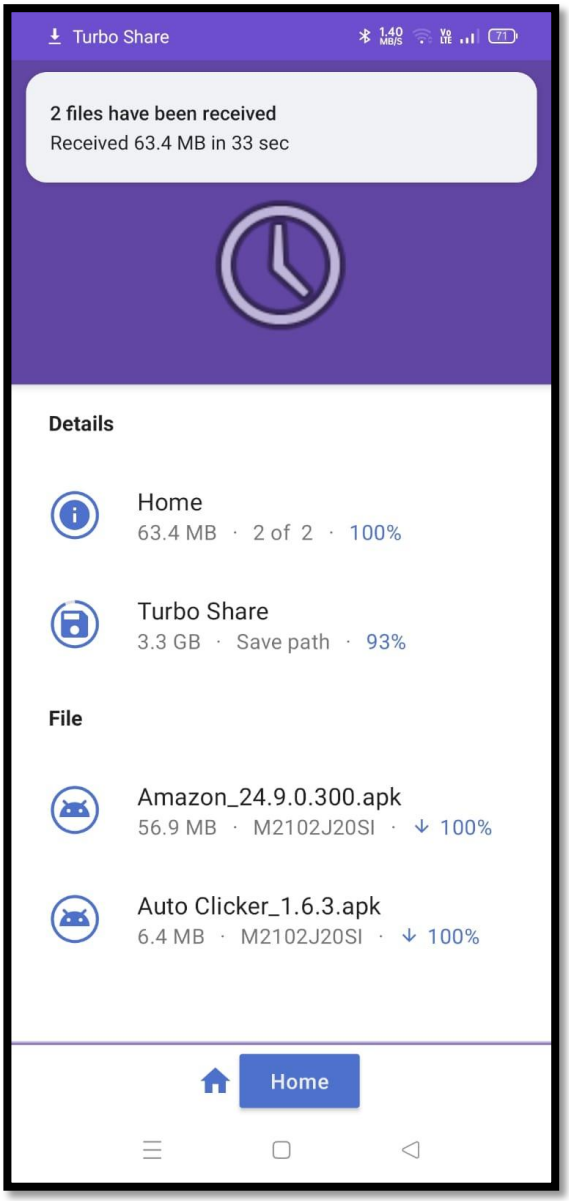


Fig. 20: Files Received Successfully Screen

VI. CONCLUSION

The development of the project Turbo Share has been wonderful learning experience for us as it took us through various phases of project development and application development in the world of software engineering. The thrill of tackling the problems involved and dealing with various bugs and logic issues gave us the feel developer industry. We gained a lot of knowledge about the working, structure and uses of API's, client and server, android OS and several hardware component and various technologies and platforms. While making the application we kept in mind to make it user friendly so that everyone can use it without any significant trouble. Just like in case of software development where there are always some shortcoming and room for improvement this application has it too. Application has been analyzed, designed, developed, tested, and deployed successfully. By means of this application, we hope to create a One stop application for users to share and store their files. Because of the advanced times, it is of paramount importance that there is a application focused and catered towards the giving a User A better User Experience. This application just provides a bridge to fill that gap. As currently the existing applications have issues like System storage is a catalog where all the Android OS is available and protected by the Linux access control component. Application specific storage is controlled by a specific application and can only be read and written by that application, usually includedin/ data /. Another way to store shared storage (internal SDcard), mounted on / sdcard / or / mnt / sdcard /, which is used to share information between applications. Additionally, some Android devices contain an external, removable SD card partitioned under shared storage. However, primary and secondary SD cards are sometimes referred to

as external storage. To prevent this split of storage, Android relies on the Discretionary Access Control (DAC) process provided by the Linux sub-program to use system access control and system specific storage. Discretionary Access Control (DAC) identifies threats and threats in Android Data storage, divided into visual threats and software threats. Factory reset can be separated into both software and physical threats Researchers' sets focus on Android smartphones with visible threats because private data can be stored in memory on mobile devices long after use.

Thus, We have discussed the usage of Turbo share. On the Android platform they are an indispensable way to enable data sharing between Devices. There are a lot of exciting possibilities being generated from the Android platform, so to best take full advantage of these possibilities now and in future, share your data via Turbo Share!

VII. FUTURE SCOPE

Although we tried to cover almost all of the aspects during our developmental phase, however we were forced to leave some aspects because of lack of time as well as monetary and other reasons.

Just like in the field of software development where there are always some shortcomings and room for improvement our application can be enhanced further:-

1) Turbo share to share files to computer devices and ios and other devices
2) for server side sharing and sharing files via cloud Emergency signal in case of network failure and internet connection loss.
3) A single place for file sharing, and also cleaning the junk file of the Device
4) Improved User interface and User Experience.

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