

# An Android Application for Empowering Youth during the Pandemic: A Case Study on the COVID-19 Update App

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**Abstract:** A pandemic of this nature, like COVID-19, can be fought with the aid of technology. Mobile applications are run on a tiny hand-held device that is portable, user-friendly, and accessible from anywhere. Youth and society are impacted by the smartphone app. An Android application can be crucial for empowering youth in a pandemic crisis like COVID-19. The goal of research is to expose and dispel false information about pandemics and raise public awareness of them. Additionally, it hopes to inspire younger people to volunteer in the event of such an incident. The researcher used Android Studio and a Firebase real-time database system to create the Android application. User experience data is analyzed based on a frequency table. The majority of users use this application to communicate with the authority (hotline number). About 12% of users specifically receive support from reading volunteer success stories. This app is really beneficial for empowering young people. This application will help them do this by providing useful information about different scholarships, fellowships, and youth empowerment. This Android application helps to provide accurate, up-to-date information about the disease and its spread. It enables people to take the necessary precautions and reduce the risk of spreading the virus. This application can provide an invaluable opportunity for youth to get involved in the decision-making process in their community. Users can get access to vital services and resources, including expert medical advice and transportation. It can also help reduce the fear and spread of misinformation about a pandemic as it can help young people better understand symptoms and modes of transmission. A nation can successfully combat any pandemic by introducing this form of application.

**Keyword — Android Application; Youth Empowerment; Firebase; Pandemic; Misinformation**

## 1.0 Introduction

People have grown accustomed to using computers and computer programs in the modern era of information and communication systems. However, the use and development of mobile applications is a relatively new and expanding industry. A mobile application, more commonly abbreviated as "an app," is a category of application software created specifically to run on mobile devices like smartphones and tablets (Hoehle & Venkatesh, 2015). It is compatible with a wide range of gadgets made by numerous vendors (Gandhewar & Sheikh, 2010). For generating unique code and putting software modules together to create an app for Android users, Android has a software development kit (Hagos, 2018). Additionally, it offers a marketplace where the app can be sold. All in all, Android functions as a mobile app ecosystem (Butler, 2011). Similar services to those accessed on PCs are routinely made available to consumers through mobile applications. Apps are often small, discrete software modules with constrained functionality. Thousands of applications for the iPhone, iPad, and iPod Touch are available in the App Store, which is where this use of app software first gained popularity. A mobile application may also be referred to as an iPhone app, a smartphone app, a web app, or an online app. Mobile application have a good effect on the world at large. The usage of mobile technology in education will change how educators teach and learn (Heflin et al., 2017). Mobile technologies, including smartphones, laptops, and

personal digital assistants, have evolved into effective learning tools that may be used outside of the classroom as well (Sung et al., 2016). This is why it is anticipated that as the usage of mobile devices spreads, they will offer a wealth of opportunities that can be helpful in the teaching and learning process and promote learning outside of the classroom (Eppard et al., 2016). With the aid of mobile applications, developed nations are becoming more accessible to their citizens, and underdeveloped nations' societies are modernizing and creating new types of IT infrastructure. The ways that students connect, access information, become involved, and plan their own learning have altered tremendously as a result of mobile devices, which are inescapably becoming a part of daily social and academic life. Educational policy makers should consider approaches to maximize the use of new mobile technologies that are pedagogically successful in light of this transition (Yokus, 2016). Mobile applications are run on a tiny hand-held device that is portable, user-friendly, and accessible from anywhere. Nowadays, a large number of individuals use mobile applications to communicate with friends, access the internet, manage files, create and handle documents, enjoy themselves, etc. A user can access a mobile application from anywhere. Many activities are available to people for daily use. Youth and society are impacted by the smartphone app. An Android application can be crucial for empowering youth in a pandemic crisis like COVID-19. The process of "reaching reasonable control over one's fate, learning to cope with crippling

influences in society, and acquiring the capacity to initiate change at the individual and system levels" is referred to as "empowerment" as a theoretical idea (Pinderhughes, 1995). People acquire the capacity to make decisions about their lives through such a process (Kabeer, 2001). Through the empowerment process, youths, like other population segments, develop influence over their lives and society in terms of their abilities, competence, creativity, and freedom of action. In terms of both demographic structure and social structure, youth are a nation's most viable and promising human resource. A nation cannot accomplish its desired human goals without adequate and coordinated bio-social development of the youth. Mobile applications are crucial for empowering young people in this regard.

## 2.0 Objective of the Research

The research has a limited number of goals. Among them:

- preparing young people for work in pandemic situations;
- identifying and combating any false information about pandemics;
- increasing community awareness of a pandemic;
- encouraging the next generation to volunteer;
- helping the community locate volunteers during a pandemic;
- providing accurate information about a pandemic.

## 3.0 Literature Review

Everyone has access to the internet in the modern era. Through smartphones and other gadgets, everyone has infinite access to technology, goods, and services. For this reason, a group of young people developed a variety of cutting-edge, digital solutions for their neighborhood. Organizations, communities, and companies can now more easily reach their audiences with mobile applications. a simple and practical method for recommending goods and services and obtaining quality leads. Applications for mobile devices are common. In actuality, 178 billion apps were downloaded in 2017 and over 190 billion in 2018. In 2020, it is predicted that there will be 260 billion downloads. Mobile applications are important and play a significant part in the market and in our daily lives, as seen by their 45% increase in less than 5 years. It suggests that mobile applications are extremely practical tools. In a pandemic emergency, these instruments can be used to aid the entire population. The COVID-19 Update app's special point is that it raises awareness among users. It helps people comprehend how their environment affects them and how, if they don't take the appropriate precautions, they will also influence others. Many projects pertaining to each person's health facilities use a similar concept. One such tool is Trace Together, which was created to help public health authorities find exposures after an infected person is found (Cho et al., 2020). Assessing Disease Exposure Risk with Location Data: An Approach for Cryptographic Preservation of Privacy is an analogous proposal (Berke, 2020). Their suggestion employs a private set of intersection protocols to communicate with a semi-trusted authority and recent GPS location histories that have been converted and encrypted. First Responders, created by Stanford University, and COVID-19

UAE, created by the Ministry of Health of the UAE, both have useful features such as real-time information on coronavirus cases, tailored user experiences, self-screening histories, and sharing news about current events in the region (Servick & Kelly, 2020; Karim, 2020). Switching between the app's sections was easy with the help of COVA Punjab and Jaano (GoB of India, 2020). The user experience was excellent thanks to the animated menu labels and iconography, as well as the straightforward navigation and directions. The remainder of the apps had numerous flaws, some of which made the app's primary function ineffective. For instance, the app would not open the map if its purpose was to display a list of infected people in the area. Additionally, there were numerous bugs with user interface components. For example, Pakistan's National Action Plan for COVID-19, which was presented as a 136-page PDF without UI and allowed for just page scrolling as the only user input, had very poor UX. The Telangana government in India developed T-COVID'19, which has GPS capabilities and offers updates on cases and fatalities related to COVID-19 as well as other crucial information, including hotspots and health centers, crucial services, and permits self-symptom checks (National Action Plan for Coronavirus Disease, 2020). However, there is still a dearth of research techniques as well as a dearth of comprehension and analysis of the issues and challenges that might emerge during the creation of mobile applications (Kumar et al., 2016).

From the conversation above, it is clear that there is still a need for an Android app that will assist the younger generation in a pandemic situation. The COVID-19 Update software will close the hole. This application was primarily created to provide young people more authority over COVID-19.

## 4.0 Methodology



Fig. 1. Authentication Screen

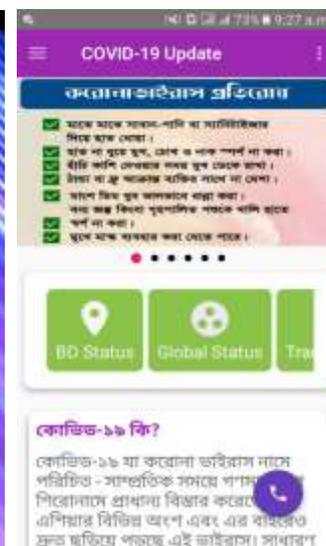


Fig. 2. User interface

This application was developed based on the Firebase database system. Android Studio was used to create the code for the application, while XML was utilized to design the user interface.

Firebase provides a cloud-based database system that allows the user to store and access data securely. After building the application, various tests were performed on an emulator running the same Android version as was used to build the application. User experience data is analyzed based on a frequency table. The results of the survey indicated that the majority of users had a positive experience with the application and that most found it easy to use and efficient.

## **5.0 Design and Implications**

### **5.1 The Authentication Procedure**

This application has a registration process for submitting COVID-19 update information. This program never gathers a user's private information. Only the phone number or email address will be collected (See Figure 1). The one-time password for this application will be provided by the Firebase Database System (OTP). The Firebase system was used to build this authentication system (Moroney, 2017). The use of the Firebase Database System ensures that users' personal information, such as their phone numbers and email addresses, is kept safe and secure. The Firebase Database System not only ensures that the user's personal information is kept safe and secure but also that the one-time password is provided in a secure and reliable manner (Moroney, 2017a).

### **5.2 The Application's User Interface**

The application's user interface is particularly conducive to educating users about the specifics of COVID-19 (See Figure 2). The user can learn some fundamental concepts about COVID-19 from this sector. They may also receive some crucial COVID-19 signals. With this platform, users can learn important information about the virus and its spread, such as the symptoms associated with it, transmission rates, and prevention techniques. This makes the user interface especially valuable for raising public awareness about the virus, which is essential for combating its spread. Through this sector, users can become more informed about the basics of the virus and the importance of taking precautionary measures to protect themselves and their families.

### **5.3 Toll-Free Number (In Case of Emergency)**

Users of this program can obtain certain crucial hotline numbers. They can get in touch with COVID-19-related experts by dialing this number. They also receive any kind of national service, including ambulances. This kind of hotline information is very beneficial in pandemic situations like COVID-19. This hotline information is especially important during a pandemic such as COVID-19, as it provides people with access to vital services and resources, including expert medical advice and transportation (See Figure 3). It is a much-needed service that can help keep people safe and informed during the pandemic, which is why it is so important to spread awareness of these hotlines.

### **5.4 COVID-19's Many Rules and Regulations**

There are a few guidelines and laws to follow when avoiding COVID-19. The community must uphold these kinds of laws.

Users of this program can obtain certain helpful and urgently required laws and regulations, which will protect them from COVID-19.

Adhering to these laws and regulations is an important way of protecting oneself and others from contracting the virus. Social distancing, wearing masks, and frequent handwashing are just some of the practices that help protect people from COVID-19. This application will provide users with vital information. It will also provide support and advice on how to use these laws and regulations in order to keep themselves safe.

### **5.5 Live Testing of COVID-19**

In a pandemic condition, people were unwilling to test COVID-19 outside. There are numerous reasons. One of the main causes is the large population. They ought to maintain a long line. This makes it difficult for many to access testing and, when combined with the fear of contracting the virus, causes people to be unwilling to wait in long lines for testing. This could lead to the transmission of a virus. However, this kind of treatment can lessen the likelihood of a positive COVID-19 test. On the government's testing website, users can register their names when they receive their last test message. By making use of this service, people can feel more comfortable in their decision to get tested and be certain that they have received a negative result. This method is significantly more efficient and simpler.

### **5.6 Searching for Volunteers and Registering Based on Location**

In the event of a pandemic, the community will require a large number of volunteers. This group of people always stands up for the weak. Users can sign up to volunteer by using this application (See Figure 4), whereby they can support the neighborhood. Through Firebase, a robust database will be created. A volunteer group can provide users with the essential assistance they require in this section. They follow a volunteer's whereabouts as well. They are able to locate volunteers extremely readily by tracking volunteer locations. Additionally, they have the ability to control blood in an emergency. They can quickly obtain blood by talking with the donor. By utilizing this technology, volunteers can be located easily and quickly in case of an emergency, and they also have the ability to obtain blood as soon as possible if needed. This technology is extremely useful for saving lives in an emergency.

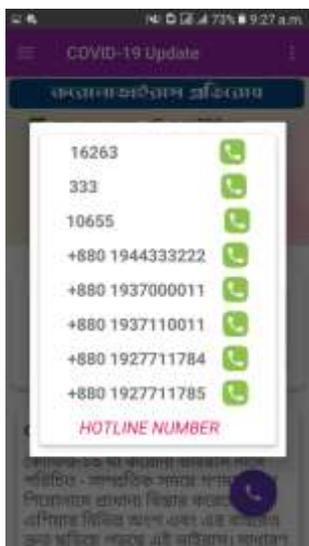


Fig. 3. Hotline Number



Fig. 4. Social Volunteer Regist.

### 5.7 Related Information for COVID-19

This application will include some accurate COVID-19 information. All of the data would be gathered from reliable sources. In particular, a government website. The application would provide users with reliable and up-to-date information on COVID-19 prevention, symptoms, and treatment. Users can also access COVID-19-related news updates using the API, which is provided by a variety of daily national newspapers. Additionally, the application would include links to the official websites of relevant government agencies, such as the Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO). Moreover, users can receive a daily COVID-19 affected list. They can continuously monitor data for the affected nations and areas. All of the information would be made available via a system of varied APIs.

### 5.8 COVID-19 Related Videos

There would be a volunteer component in charge of the application's video section. A crew of content producers will produce material to raise people's consciousness in the community. They will demonstrate how to wash your hands, how to keep your distance from others, and many other COVID-19-related activities. Additionally, they try to amuse the entire community with their creative ideas. These videos will especially motivate the younger generation. By doing this, they would feel more empowered. The videos produced by these groups will act as a source of motivation, teaching the people the importance of hygiene and how to protect themselves during this pandemic. The production of these videos is a powerful way for people to use their skills to have a positive effect on the lives of others.

### 5.9 Sharing Information with Youth

This application will offer some useful details about different scholarships, fellowships, and chances for youth empowerment. The API system would be used to supply this kind of information. In this way, the production of these videos can not only provide entertainment and spread awareness but can also be used to inform people of different opportunities available to them.

### 5.10 Eliminating COVID-19 Misinformation

Misinformation, or fake news, is actually quite bad for a society. This application may serve as a reliable information source. Users can get a list of false information with this application, which list would be changed on a daily basis. With the help of this application, users can be more aware of any false information they may encounter, which will allow them to make better decisions when it comes to news consumption.

### 5.11 Writing and Sharing a Youth Volunteer's Success Story

In the event of a pandemic, young people should take the lead in spreading love and affection throughout society. There are numerous individuals working hard to raise awareness throughout society. They would be encouraged to share their artwork and stories. Additionally, any user can share their success stories. A real-time Firebase database system will be used to store all of the stories. With the help of this database system, users can see all stories and how they have been used to bring about change in society.

## 6.0 Results and Discussion

Understanding the social benefits of any research is crucial since it aids in determining how the research will affect its intended audience. The survey aids in gathering knowledge and viewpoints on the subject and promotes improvement. Basically, this survey procedure entails asking respondents questions online or offline to collect information. It also serves as a fantastic platform for research on branding. A comparable survey was conducted for the COVID-19 Update. The survey was created and distributed across a number of platforms, and the results were examined. The questionnaire asked about the use of different features and productivity. It also gathered general information in order for us to determine which specific location or age group the data came from. We can see from Figure 5 that 78% of users are of a relatively young generation. This app is really more beneficial for empowering young people. Since young people have society's greatest potential, they have a greater propensity to use this application.

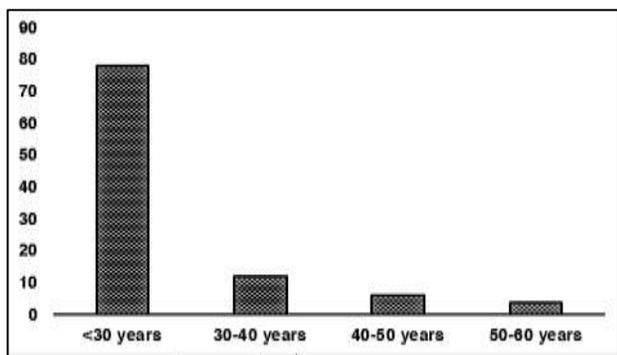


Fig. 5. Users of the Application by Age

According to Figure 6, the majority of users use this application to communicate with the authority (hotline number). About 12% of users specifically receive support from reading volunteer success stories. In addition, a sizable portion of viewers (18%) watch videos made by volunteer content creators.

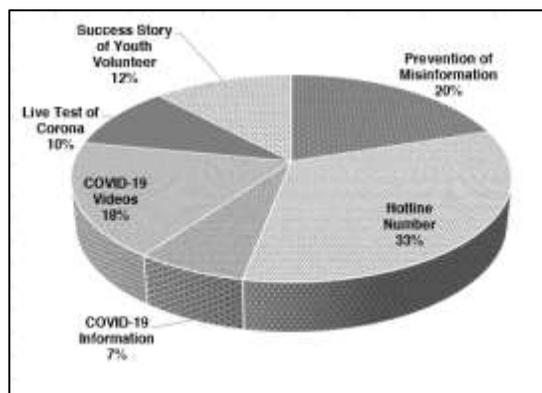


Fig. 6. The most popular application feature

Overall, we found that the community is primarily receiving true COVID-19-related information from this application. Youth empowerment is also aided by it.

### 7.0 Conclusion and Recommendations

We currently live in a technological age. The majority of things are comparatively dependent on technology. Technology can help in the fight against a pandemic of this kind, such as COVID-19. Technology can be used to help track the spread of the virus, trace contact networks, and develop models to understand how the disease is progressing in a population. One of the greatest technologies for fighting COVID-19 is an Android application. This Android application helps to provide accurate, up-to-date information about the disease and its spread. By allowing people to easily access this information, it enables them to take the necessary precautions and reduce the risk of further spreading the virus. The use of Android technology can empower young people. Through this Android application, young people can actively participate in the fight against COVID-19. By taking control of the information

available and having access to the most recent updates, young people are given the tools to fight against the virus. It is clear that Android technology is an important tool to help young people stay informed and up to date with the most recent news and developments surrounding COVID-19. Through the use of this Android application, young people are able to stay in the loop and act proactively to protect themselves and their communities. When there is a pandemic, many individuals are imprisoned inside buildings. This technology can assist in disseminating the genuine COVID-19 information. Additionally, it aids in securing educational services. In a larger sense, students can start structured self-learning activities at home or abroad with intelligent gadgets (Sharples & Spikol, 2017). Additionally, android applications can raise society as a whole's level of consciousness. Users can access a variety of inspirational movies and information by creating COVID-19 Update-related applications. Additionally, they recognize all forms of false and inaccurate material on COVID-19. Based on the volunteer's location, users can find them in a hurry. This application can empower youth by (i) involving youth in the community, (ii) providing accurate information to the community, and (iii) raising community awareness. This application can empower youth by involving them in the community, providing accurate information on COVID-19 to their peers and neighbors, and raising public awareness of the current health crisis. These activities can help them build their social networks and develop leadership skills. Through this application, young people can become agents of change, educating their community about COVID-19, connecting those in need with available resources, and bringing attention to the disparities between individuals. Additionally, this application can provide an invaluable opportunity for youth to get involved in the decision-making process in their community. By actively engaging in their community, young people can gain experience and develop skills that are essential for success in life. As a result, this application is an excellent way for young people to develop self-confidence, problem solving abilities, and civic engagement. However, there are some drawbacks as well, and the adoption of technology frequently has an impact on consumers (Azuddin, Malik, & Mahmud, 2017). All things considered, a nation can successfully combat any pandemic by employing this form of application. The use of this application has great potential to help mitigate the impact of a pandemic, as it can equip young people with the skills and knowledge necessary to take an active role in their community. This application also has the potential to decrease the fear and spread of misinformation about a pandemic as it can help young people better understand the symptoms and modes of transmission. Furthermore, the application has the potential to educate and empower young people by providing them with access to credible sources of information, such as health care professionals. Through this application, a nation can work together to reduce the spread of a pandemic by helping young people learn how to protect themselves and those around them.

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