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Information-Based Mobile Application to Tackle COVID-19 Circumstances

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Authors' contributions

This work was carried out in collaboration among all authors. Authors SH, MNH, MNI, MRM and MSA designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author FK provided overall guidance and support to the study and critically reviewed the manuscript. All authors read and approved the final manuscript.

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ABSTRACT

Internet of Medical Things (IoMT) ensures the ability of healthcare professionals by allowing them to remotely access each patient's personalized and accurate data. The accuracy, as well as the speed of treatments and diagnosis, is greatly improved as well. IoMT also enables healthcare professionals to monitor the status of their patients' health in real-time. The behavior of people can be recorded with the intent of getting an online diagnosis, thus managing their one's health is more effective. Tools like sensors and tracking devices, telemedicine, remote patient monitoring (RPM) and also virtual assistance makes these things happen. Perhaps healthcare professionals are mostly benefited by IoMT in their professions. So, in the case of a pandemic (COVID-19), our proposed application can spread the facilities of IoMT among the general people. The main purpose of this application is to make a system that compresses the number of coronavirus affected people by the extent of awareness. People can track data of confirmed, recovered, and

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fatal cases globally and locally through this app. People can also get information about the nearest COVID-19 hospitals with google map and get their helpline numbers. All these can be very important for Bangladesh, being a developing country. They can easily make doctor appointments through the system. People can get information about plasma & blood donation and they also can donate their blood and plasma by a requesting process. Users' information about their health can be saved in the cloud system from time to time so that a doctor can easily get all the information. So, our proposed app can help to control the COVID-19 pandemic situation and people will be benefited.

Keywords: COVID-19; coronavirus; mHealth; IOMT; RPM; FAQ; COVID myth buster.

1. INTRODUCTION

Coronavirus 2 (SARS-CoV-2) causes the COVID-19 and the rate of the global spread of this deadly disease is accelerated [1,2]. While coughing, sneezing, or exhaling, an infected person generates droplets through mainly which the virus transmits. These droplets, after generated, fall on surfaces or floors quickly as it is very heavy to remain in the air. If anyone breaths the virus in or touches their mouth, nose, or eyes after touching a surface that is contaminated then they can be infected [3].

Many of the COVID-19 infected people will recover from minor to moderate respiratory illness without special care or treatment. Those who already have medical problems such as diabetes, cancer, cardiovascular disease, and chronic respiratory disease and those of older age are more prone to get seriously ill [3]. As of February 15, 2021, the confirmed COVID-19 cases are 109,396,042 and death cases are 2,411,688 worldwide and within that, Bangladesh has 540,592 cases and death cases 8,274 [4]. So perceiving the height of it, WHO declared COVID-19 a Pandemic at the right time [5]. There are panic and fear all over the world. No one knows when this pandemic is going to end and when the people of this planet can return to their normal life. To make this happen, the citizens of the world must follow the instructions and procedures that the World Health Organization (WHO) has laid out for us. People have to be aware of their surroundings and have to have the knowledge or means to know whom to contact and what to follow if they or someone else gets affected by COVID-19. They need to keep their knowledge of the COVID-19 situation updated. They also should know nearby hospitals and clinics capable of dealing with COVID-19 affected people in the case such a situation arises. Information on every possible thing that can help a little in this situation should be within hand reach. By predicting COVID-19 early intelligent computing can play a big role in reducing the coronavirus's spread [6]. Data analysis in real-time can help artificial intelligence to provide the latest information to prevent COVID-19 [7]. Such one data visualization showed that among males and females, males are more prone to COVID-19 infection [2]. In this pandemic, innovative technology such as IoT can ensure the quarantine of the persons infected by COVID-19. Also, the proper monitoring system can be a big help during quarantine [8]. So, our proposing Internet of Medical Things (IoMT) app will meet this challenge and solve many problems regarding the facts mentioned. The patients currently in treatment or on medication are tensed due to this COVID-19. They are also being affected by the current situation that the lockdown and COVID-19 have brought up. For that to integrate medical devices with an innovative means like IoMT and also to unify the healthcare information system with IoMT applications through using networking technologies [9]. With this, it will be easy to get information regarding COVID-19 and nearby situations. This can also help to distinguish fake news and maintain a strategic distance from panic. Utilizing the control of AI, screening trillions of compounds is easy, which can turn out to be a stronger way to handle this COVID-19 pandemic [10]. Getting in touch with helplines, doctors, and health services will be as easy as it gets.

COVID-19 has been roaming this world of ours for about 13 months. Since the beginning, researchers have shown very interest in this topic and still are researching as well as conducting experiments to figure out a way to get rid of this pandemic. Our proposed app is a little bit of a contribution to that research work. It is a hot topic that needs a quick and authentic solution. Many researchers are trying to find a cure or a way to fight COVID-19 while others are researching on stopping the spread of the coronavirus as well as helping people fight

through this, etc. Our research and implementation in many ways can be categorized under stopping the spread and helping to fight through it.

Many of the people still don't know the correct procedure in the case of the COVID-19 emergency. There are no viable instructions to avoid panic. Also, information on the pandemic is scattered through the internet, thus making it difficult to find. Therefore, updates on and statistics of Coronavirus globally, and mainly locally aren't at hands reach. On the other hand, the reservation of a doctor's appointment is comparatively difficult as the pandemic causes fear. People still are unaware of their surroundings or the nearest COVID-19 affected people. Another concern is finding blood or plasma donors are very difficult now as most of the frequent donors are afraid to donate. Also, keeping track of an area's COVID-19 situation isn't easy and resourceful. Individual monitoring is also not available. The COVID 19 is a challenge for all things life including people's mental health, so mental health is also an issue that needs attention [11,12]. People don't know when and where to get tested for COVID-19. People need something they can get all the information that is easily understandable and gettable in one place rather than searching for it all over the internet as time is of the essence now. People need to know their surrounding situation as to who and where a person is a COVID-19 positive. When, how, and where to get tested as well as where to go in case of need. People are getting all sorts of wrong information and myths that need correct answers.

With the help of our app, slowing down and preventing transmission can be achieved by being well informed about everything regarding COVID-19, how it spreads, and as well as the diseases it can cause, which can be considered the best way to do so. One will frequently be informed on crucial things like washing hands, not touching the face, using alcohol-based rubs often to prevent infection. Real statistics and news of the whole world and Bangladesh can be found in the application which can help in stopping the fake news from ever spreading. It can also help people to prevent panic over fake stats. And in case someone is infected, he/she can find any relative and helpful information that will guide him/her to the proper steps to cure himself/herself and many more. This study will solve problems that mostly occur due to lack of information and can be easily avoided with the help of our application. All these in their hands' reach would give a little light of hope through our application.

2. MATERIALS AND METHODS

Design and development of the app as well as its features takes a crucial part in building an effective and engaging mHealth application [13].

Primarily we designed the flowchart of the app which led to the best sequence possible for our app. The flowchart shown in Fig. 1 shows how each module is placed in order of importance and preference to guide users smoothly through the app. While designing the flowchart, we kept in mind how certain content might affect users' mental condition if placed at the top spot. We decided to put modules that will make users feel at ease and gradually prepare users for the following contents. After considering all of these facts and many more we started to design and implement the app.

After installing the app and entering it for the first time, the users will see a screen telling them to stay home and a hand-like sign indicating to swipe right. Swiping will bring a few more basic but crucial instructions such as work from home, wash their hand frequently, maintain social distancing, and wear a mask along with proper, appealing, and eye-catching graphics that can persuade users to follow them happily as shown in Fig. 2. After that the registration screen appears, asking the user to put only their name and country in to complete the registration (see Fig. 2). Here we have decided not to ask for a phone number or email verification to enable digital privacy and the app also doesn't ask for any access permission to ensure security. M. N. Islam et al. [14] found in their study that asking for personal information such as phone number leads to users' dissatisfaction and raises concern for digital privacy. Relatively, Fischer-Hübner [15] suggested both security and privacy as important design and development considerations.

Returning users will land on our home page which is shown in Fig. 3. The name of our app goes at the top and the icon left of it shows the developing and research team info, while the icon right of it shows the recent and authentic updates of coronavirus on the press. The next section has a slider that educates users on some primary information regarding COVID-19. Then the two modules appeal to users' humanity, giving them the option to become a volunteer and donate to organizations that are doing their

best to help people get through this pandemic as togetherness is the only way to survive. Upon press, users can see the organizations in need of volunteers or donations and can email us to enlist their organization. Right below that, there's an emergency number that users can call directly to in case of any emergencies. Press there will allow users to see more emergency and important contact numbers that will come in handy. The FAQ module contains more or less all the frequently asked questions that users can find answers to calming their curious minds by answering questions with relative videos. Another module that the app has is 'COVID-19'. Inside it, users can find everything they need or would ever want to know related to COVID-19 (see Fig. 4). For example, instructions on how to be ready for coronavirus, communicating severity, getting workplace ready, and articles on what to do or what not to do if the user is sick, how to care for others in the home, articles on pregnancy & breastfeeding during COVID-19, disinfecting user's home, COVID-19, and asthma, and another very important matter that requires attention in anxiety and stress management and so on.

Fig. 1. Overall flowchart of the App

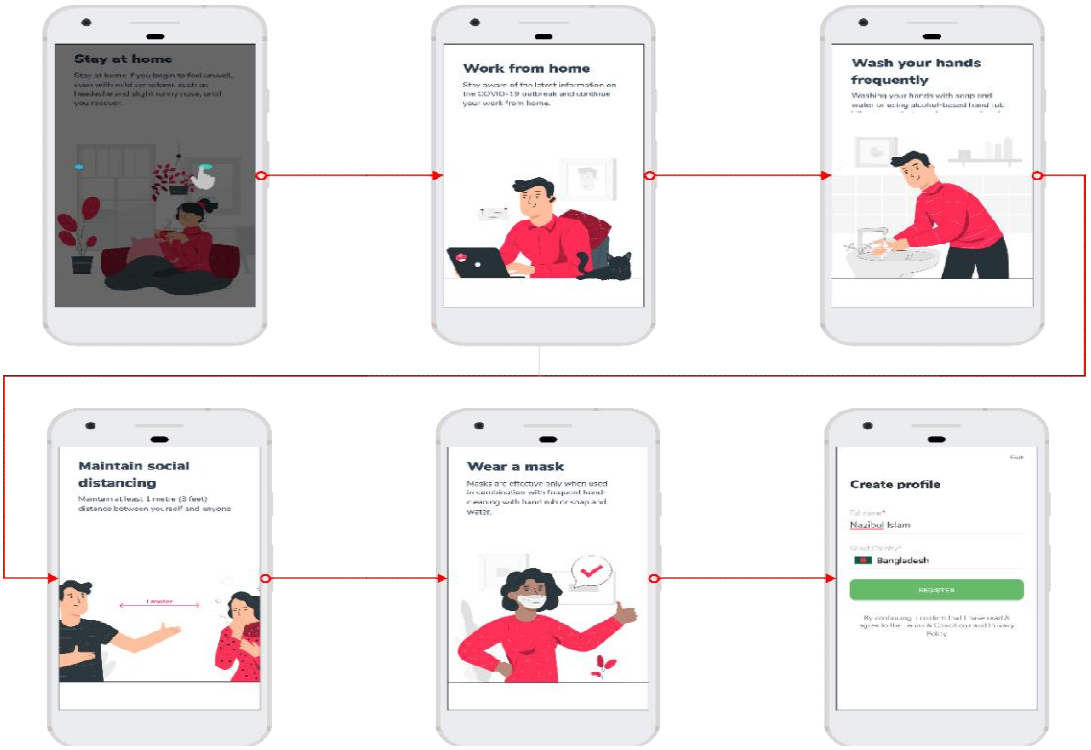

Fig. 2. Opening the app for the first time and the registration process

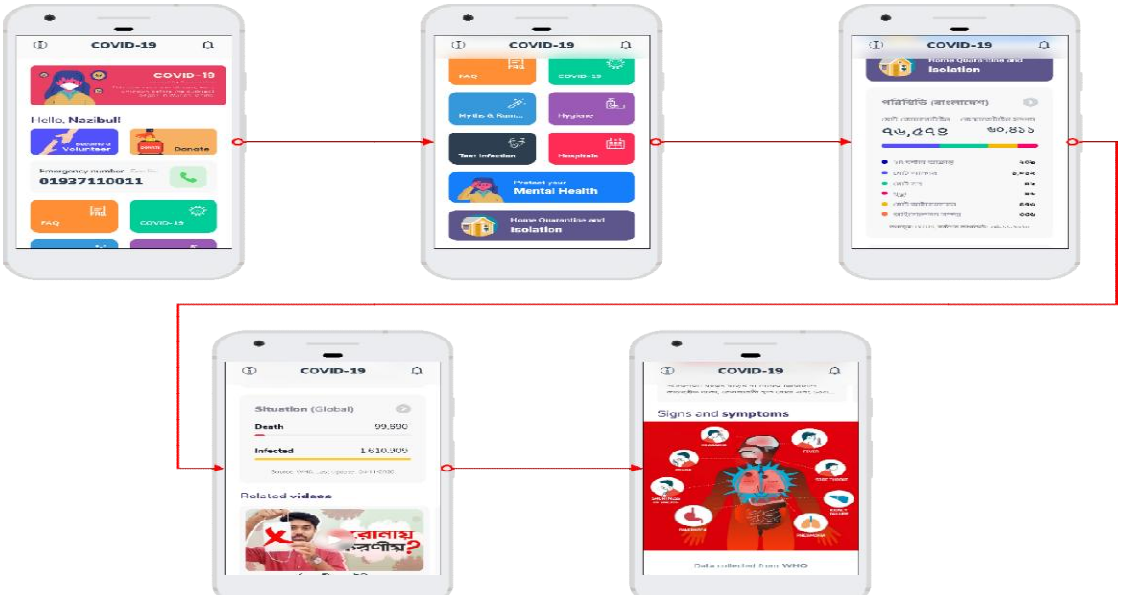

Fig. 3. Home page of the app

Another necessary module that the app has is "Myths and Rumors" (see Fig. 3). In this crisis or any, there's always some rumors or ancient myths spread among people. And these rumors seem so believable that people get afraid and follow those myths and rumors. This module is here to get rid of all the myths and rumors by revealing the truth and facts about the rumors going on (see Fig. 4). So, it allows the users to verify and/or identify myths and rumors the

instant they come across them. This module is designed to minimize the damage that myths and rumors cause during this pandemic. COVID-19 has proven the universal truth that people have been neglecting that hygiene is one of the most important factors to keep us alive [16]. Thus, the "Hygiene" module focuses on educating the proper ways and importance of keeping oneself hygiene all the time. All the tips and tricks for different situations with proper examples on how to keep oneself hygiene are beautifully presented in this module. Wearing masks, face protection, hand gloves, PPE, and sanitization are a few of the many things in our "Hygiene" module. "Test Infection" is the module that has to be in a COVID-19 app. This is a module where users can primarily check if the user have low or high chances of being infected. The result is completely based on the questionnaire and derived from the data provided by WHO. After clicking on the "Test Infection" module, users will see a page asking for their age and few important questions. Users will have to answer with yes or no and then slide right for the next question. After answering all the questions, users can press the button below to see their score. On the scoring page, they will see their score based on their response along with some important instructions based on their score and risk level. They will also have the options to see COVID-19 hospitals, and the IEDCR helpline (Institute of Epidemiology Disease Control and Research, Bangladesh). Users can recheck as well from there (see Fig. 5).

Knowing where to go in emergency cases can help to save many lives. We have a module named "Hospitals" in our app (see Fig. 3) that will do exactly that for users. When users click, they will have options to choose from between corona hospitals and nearby hospitals. Not all hospitals in a country provide COVID-19 related treatments. So, it is really important to know if the hospital users are going to provide COVID-19 related treatment or not. So, when needed users can see from the extended list of corona hospitals and also be able to call them ahead. But if users just want to go to any hospital quickly, then they can find the nearest hospital, based on users' location. Here the app will ask

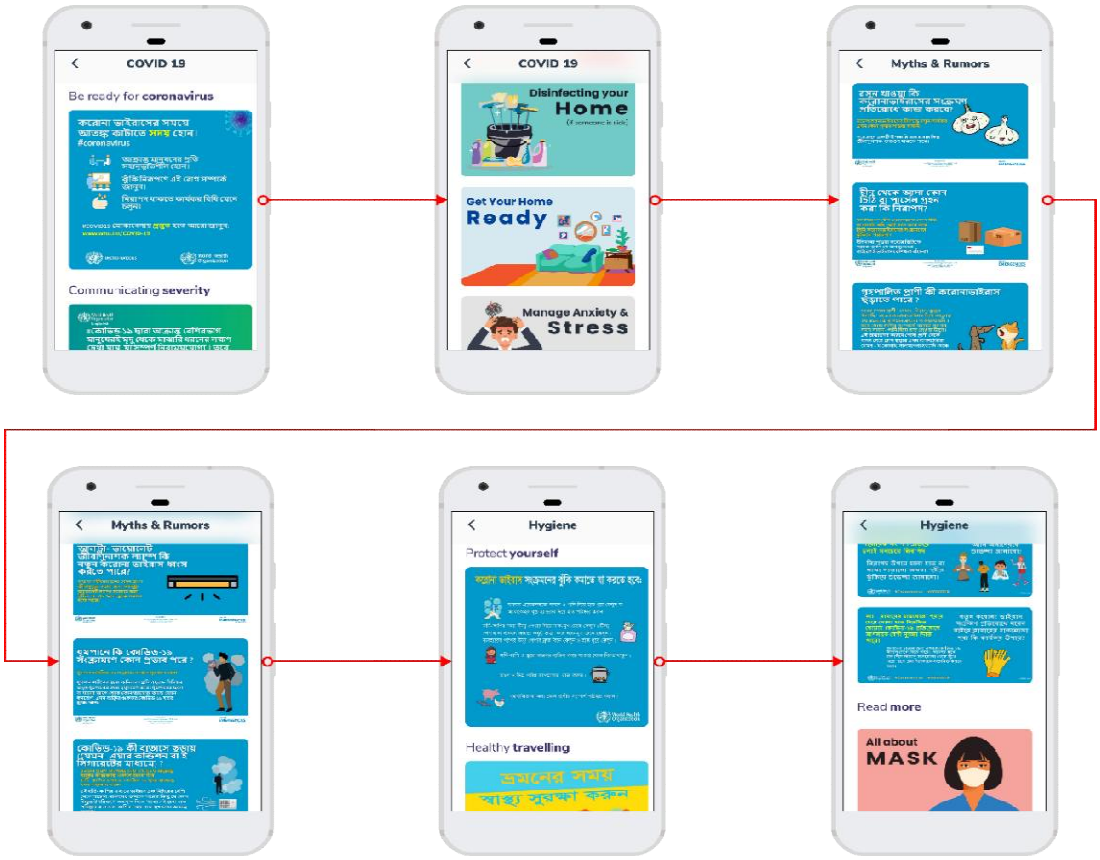

Fig. 4. COVID-19, Myths and Rumors, and Hygiene modules

for permission to allow the app to access users' location, only after users click the option. users can tap on the hospital signs on user's map to see details. Another critical factor to carefully consider during COVID-19 is mental health and social media impact [17]. Mental health is no less important than physical health. Mental health can have a great impact on physical health as well. Therefore, we have included the module "Protect your mental health". This module will allow users to know the importance of mental health and how to protect themselves during the pandemic. It will show users instructions and guide users to keep their mental health in good condition (see Fig. 6). It will tell users what to do and what not to do as well as things to keep in control that will help them to protect their mental health and keep it in good condition.

The "Quarantine and Isolation" module is here to let users know some basic but important information about home quarantine and isolation. This will get users introduced to the facts as many people haven't heard about these terms before this pandemic. Some important facts and rules to follow during quarantine and isolation can also be found here (see Fig. 6). The next module will let users know the statistics of local (Bangladesh) COVID-19 showing users the number of infected cases, deaths, recovery, isolation, quarantine, and tested, both in total and 24-hour time frame (see Fig. 3). Upon clicking the arrow on top of the module, users can see very detailed information about the whole situation locally. The module below this will show users the same thing as the previous module but now it's globally. Clicking on that will show the detailed information of the whole situation and statistics globally. After all these modules users can find all the important and related videos that will help them to prepare and get through this pandemic. At the end of the home page, a simple image has been placed to refresh users' minds about the signs and symptoms of the COVID-19. Contact tracing feature is also included as it is one of the most important features to warn users in case they get into close proximity of an infected. This will ensure that the user can be at

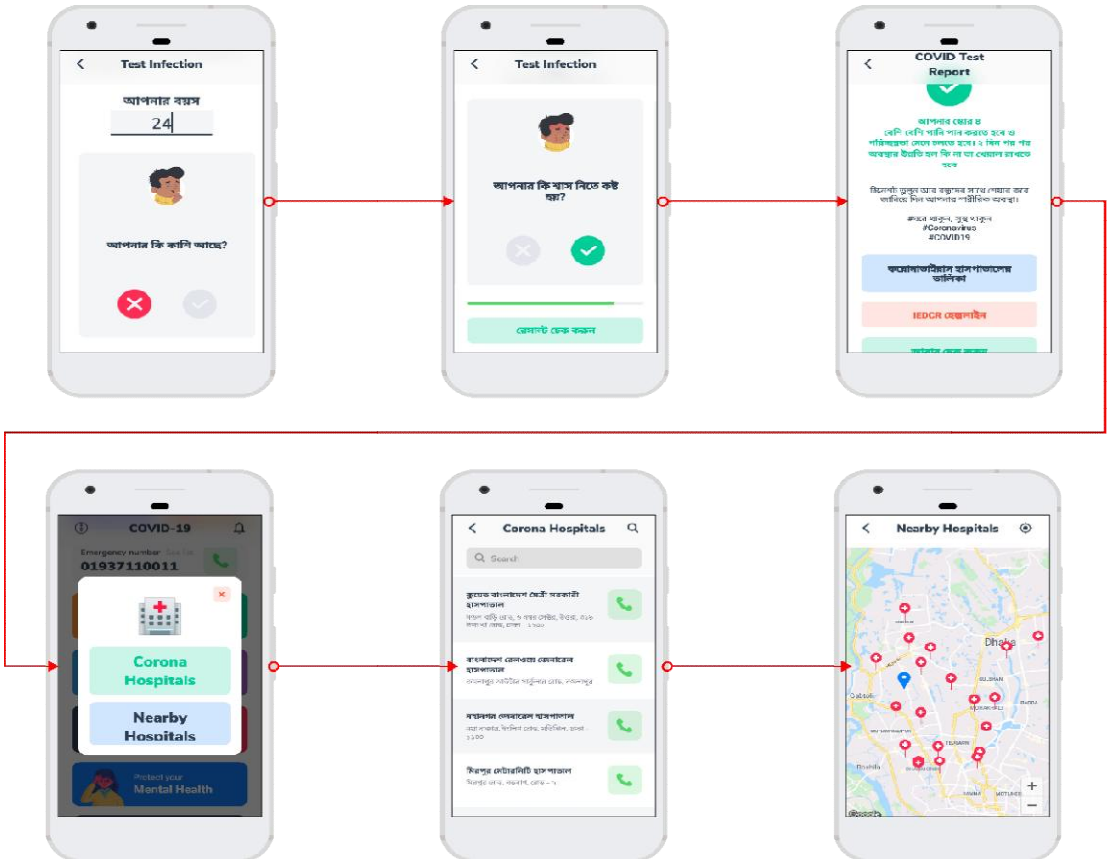

Fig. 5. Test Infection and Hospitals module

Fig. 6. Protect mental health, quarantine and isolation module, and loading animation

a safe distance as well as the fact that they need to take proper steps in case of an encounter with an infected person. One other unique feature the app has is the loading animation that appears while loading and refreshing any page. That animation is of hands rubbing and washing with the intent of reminding users to wash hands frequently to keep themselves and their loved ones safe. Here in the app, we mostly used local language (Bangla) to allow more efficient and effective use of the functions by local people as many pieces of research emphasized local language and designs being culturally sensitive resulting in better [14,18,19].

2.1 Design Highlights

Designing the app was one of the most critical parts. A good design can make a great effect on users and the app's performance. Thus, we took our design to the level that can have a good effect on any type of user.

The app contains user-friendly colors. The app was designed to maintain the recommended color contrasts and ratio by W3C [20,21]. Appropriate color contrast allows users to easily read and comprehend text and images [20]. We also used color contrasts so that color blind people won't have any issue using the app comfortably.

People with normal color vision will see the app and its content in the colors shown in Fig. 7.

People who have Achromatomaly vision will see the app in the colors shown in Fig. 8 rather than normal colors.

Fig. 7. Normal color view

Fig. 8. Achromatomaly vision

Fig. 9. Achromatopsia vision

People who have Achromatopsia vision will see the app in the colors shown in Fig. 9.

People who have Deuteranomaly vision will see the app in the colors shown in Fig. 10.

People who have Deuteranopia vision will see the app in the colors shown in Fig. 11.

People who have Protanomaly vision will see the app in the colors shown in Fig. 12.

People who have Protanopia vision will see the app in the colors shown in Fig. 13.

People who have Tritanomaly vision will see the app in the colors shown in Fig. 14.

People who have Tritanopia vision will see the app in the colors shown in Fig. 15.

These 8 types of color blindness have been considered in the app while deciding color contrast. Color blindness is a serious factor and should be considered while designing web or mobile applications otherwise the accessibility of that application decreases greatly [22]. Typography is also an important factor that directly affects application performance. Thus, appropriate recommendations and a proper understanding of typography should be kept in mind while designing [23,24,25]. We kept important things like emergency phone number's size a bit larger than normal with a large call button for an easy and quick call. For buttons, we

Fig. 10. Deuteranomaly vision

Fig. 11. Deuteranopia vision

Fig. 12. Protanomaly vision

Fig. 13. Protanopia vision

Fig. 14. Tritanomaly vision

Fig. 15. Tritanopia vision

kept the font size bigger than usual with a relative icon ensuring better communication. We also maintained hierarchy in our app design as it's a critical factor that set the order that users process information [26]. The situation regarding COVID-19 has been shown with colorful graphics allowing users to perceive easily.

3. RESULTS AND DISCUSSION

By designing and determining the placement of modules and content, we found out that early exposure to sensitive content can lead to users' panic, dissatisfaction, and mental stress. Thus our application's considerate module placement successfully avoids that. The appealing and eye-catching graphics and animation used in the app have a great and positive effect on users. The app can successfully verify almost every myth and fake news as well as real-time stats that enables users' proper understanding of the situation. All the necessary things on how to, dos, and don'ts of the pandemic can provide a good sense of a clear path to avoid infection and healthier life. The Contact tracing feature of this app can keep users safe and distant from possible infection. The hassle of users is reduced in matters of hospitals, doctor appointments, ambulance, oxygen, etc. The color-blind design consideration effectively assists color-blind users' comfortable use of the app and old people can see the modules clearly as the font size is high enough. All these can be a great base point for other researchers for further studies.

3.1 Related Applications and their Characteristics

There are many apps on COVID-19 locally and globally. We have discussed a few apps here.

Corona Tracer BD [27] is the app that is approved by the ICT Division and DGHS. They used the contact tracing feature in that app via Bluetooth technology, which recognizes people at risk of COVID-19 infection via the Bluetooth system and notifies users. The app also provides information about symptoms, current data, location of local health, and testing units. The consumer should verify whether the symptoms are consistent with COVID-19.

Corona BD [28] is the app that is made for testing symptoms. Users enter their health status that is recorded on their dashboard or profile. They get advice, recommendations, and different treatments for symptoms, depending on the current condition and risk level of the patient. The frequent Corona updates and the closest sample selection booth on the map can be found in this app. Information regarding corona-affected individuals may be added by users.

As a national public health institute, the Robert Koch Institute (RKI) has released the Corona-Warn-App [29] for Germany on behalf of the German Federal Government. If the user were recently close to someone who subsequently tested positive for COVID-19, this software is designed to break the infection chain by telling the user. No type of personal information is obtained by this app. User privacy is well-protected, so who the user is and where they are will be kept secret.

Corona Melder [30] which is established under the supervision of the Ministry of Health, Welfare, and Sport, is the official Dutch coronavirus notification app. The user is alerted by the app if they are near someone who has a coronavirus. Protecting theirselves as well as others is possible in this way. And we should keep the number of pathogens as low as possible in the Netherlands. This app does not need personal details of any sort. If the user is affected, update their app details to assist others by sending alerts to people near them during the time that they were infectious.

CMED Agent [31] is a Smart Health Agent CMED app to provide anyone with digital health services. It's an Android and a cost-free app. This is the Bangladeshi app and the Bangla language. Health monitoring, preventive guidelines & self-assessment are provided by this app.

COVID-19 [14] is an Android edition and a cost-free downloadable app. The rating is 3.8 for 15 users. It was initially released in Mar 2020. This app offers notification of health tracking, video consultation and warning alert. It maintains a privacy policy system.

HealthLynked COVID-19 Tracker [32] is an app developed by HealthLynked to help users to alert contacts to self-report symptoms so that they can get medical attention if they test positive for the virus to avoid spreading. It's ranked 4.6 by users of 18.1K. It's an iOS version and an app that is cost-free. To keep users updated about the virus, the tracker also displays all the latest virus news from around the world. With the chat features, users can also participate in real-time chat.

World Virus Watch [33] is a cost-free Android edition app. The ranking is 4.1 for 47 users. It was published in Mar 2020. It was developed to provide the current accurate outbreak status information using push alerts and a clean UI concisely. Currently, it monitors data from the corona-19 outbreak. To help users stay updated while making plans, the App is designed to provide global & vocal data.

COVID Live Tracker – Corona Virus Pocket Guide [34] is a free-of-charge Android edition app. It has a rating of 4.5 out of 15 users. It was originally released in March 2020. This app infection rates from more than 30 nations, emergency numbers, and their country's website. It also contains all the news from the journals about the virus. This app is a useful pocket guide to COVID-19 symptoms.

Helponymous: Corona-Virus Chat [35] is an iOS version and a cost-free app. It's grading 4.8 by 60 users. It was released in Feb 2020. The first time it was published in Feb 2020. By secretly exchanging personal experiences with real people, Helponymous provides the individual with a profound capacity to find self-care. Using this app, users gain motivational knowledge and self-confidence.

COVID-19 Sounds [36] is an iOS and Android version of a cost-free dual-platform app. The new rating is 3.7 per 95 users. It was released in Apr 2020. This app is part of a University of Cambridge research project. The purpose of this study is to build algorithms for machine learning to automatically detect if a person suffers from COVID-19, based primarily on their speech, breathing, and coughing sounds. The app would gather some basic demographics and medical background info, as well as some speech samples through a questionnaire and a few seconds of breathing and coughing through the phone microphone (while users read text on the screen).

Apple COVID-19 [37] is a cost-free app for the iOS version. The rating is 4.2 per 2.7K users. In Mar 2020, it was released. This app has up-to-date data on the coronavirus disease that affects people around the world from reputable sources. It has a screening feature that helps users to discover what users can do about themselves or a loved one now. And it gives users access to information that might be important for users to stay updated.

COVID-19! [14] is a cost-free, dual version of the iOS and Android platforms. It has a ranking of 3.3 for 34 iOS users and 4.1 for 54 Android users. It was released in Mar 2020. Corona status, corona news, state/data visualization, corona symptoms, and recommendations for prevention are provided by this app.

COVA Punjab [38] is a cost-free, dual version of the iOS and Android platforms. It has a ranking of 2 out of 4 iOS users and 4.6 out of 51 Android users. It was released in Mar 2020. This app provides health-tracking, real-time dashboard for Punjab, India and global statistics, corona symptoms and fast self-screening, self-assessment, corona awareness, preventive guidelines, corona hospital list also map of Punjab, call help, push notification and FAQ.

Coronavirus Australia [39] is a cost-free app with an Android version. It has a rating of 3.5 out of 1651 users. In Mar 2020, it was released. This app offers essential health advice to keep up-to-date with official details and advice to help stop the spread and stay safe, get a fast snapshot of Australia's current official status, check symptoms if users are worried about themselves or anyone else, find relevant contact information, access updated Australian Government information, receive push notifications.

But it monitors information about reported, recovered, and fatal cases globally and locally in our app. It regulates the propagation of COVID-19 (Corona-Virus). People obtain information about COVID-19 symptoms, emergency numbers, a google map of the nearest Corona hospital, and also get the number of the helpline. Through the scheme, people can make doctor appointments easily. They will get Plasma & Blood donation information and through the requesting process, they can donate their blood and plasma. Where it is accessible, they can get information on the oxygen cylinder. For patients, it is a very significant matter. Users store all their health records in the cloud system so that all the information can be quickly accessed by a doctor. Via contact-tracing of the individuals, they will know if any people nearby are infected by Corona and also track them. There's no personal information needed for the app. Our app design is really good and user-friendly. Our app is a full package where, on one platform, users can find most of the required items. No other apps like our app offer such facilities. So, our application is going to build a framework that will assist us in this pandemic and will help people.

Roba Abbas et al. [40] COVID-19 pandemic, based on the quick spread and increment within the number of deaths, Singapore and Australia have made their claim 'COVID 19 tracing application' is built upon the uses of diverse sensors and Bluetooth technology. It has some privacy issues and for that authority records their data till 21 days. And Australia's COVIDsafe app also had numerous convenience issues and it is a semi-mechanized process with a measured approach to the plan of these frameworks are necessary. Vinay Kumar Reddy Chimmula et al. [41] During the outbreaks of COVID-19 in Canada they made their CORONA forecasting Model using the Deep Learning (DL) Model. This show helped in limiting the diseases and conceivable end of the current COVID- 19 pandemics predicated on LSTM approaches and predictive outcomes. It creates a great impact in Canada and centralized places a regime ascendancy in control of the exchange of important contact and subtle elements once there's a pandemic case. Nadeem Ahmed et al. [42] Today's world is shocked by the coronavirus, In this situation, Corona has brought the people to the global epidemic for the reason they made a contract tracing application especially for COVID-19 detection. They have used the centralized, decentralized, and hybrid approaches that are the main method to build the tracing approach. This tracing app has incited much talk around its key traits, counting framework engineering, information administration, protection, security, vicinity estimation, and assault vulnerability. Abuhammad S et al. [43] The research determines the adequacy of COVID-19 tracing technology and moral issues of utilizing it, Numerous Tracing apps during pandemic has remarkable activities to reduce and detect symptoms but there has some privacy how general people act with those applicable laws and method this was the main theme of the paper. This works prosperously in the stand of modern technology to adequacy to utilize tracing innovation for wellbeing movement and within the future, during any pandemic like CORONA, It will be a subsidiary for researchers. Samuel Altmann et al. [44] COVID-19 broke all the anterior pandemic records and to abbreviate the affected rate many countries take variants of steps like lockdown, emergency, and withal developed some contract tracing application. Those types of apps are the main method in this research. They demonstrated the acceptance of this COVID-19 application and provided astute prognostication results. They utilize numerous methods and apply those different countries to visually examine the result of how people react and utilize those applications. This research will be auxiliary for engendering this type of application. Aishwarya Kumar et al. [45] Briefly describe how modern technology is involved and used to fight pandemic COVID-19. They represent that AI, Computation, Deep Learning are the most enthusiastic way to analyze epidemic outbursts. Vigorously initiated there the precision rate of modern technology in this unstable coronavirus situation which is impressive. Albeit, Many rigorous incidents transpired in the clinical sector researcher was concerned about apprising the remarkable usability to avert pandemic COVID-19.

4. LIMITATIONS

Although this application is absolute help in a pandemic situation like COVID-19, still there are some limitations that we cannot easily solve without individuals' support. As one of the features of this application is to provide information about plasma and blood donors, if the donor doesn't want to give the correct information about themselves then we cannot provide the information when in need. Also, this application cannot provide any oxygen supplies, because it has no ordering service yet. A coronavirus is a contagious virus, it has issues about spreading into individuals so they need to be isolated urgently. This application has no isolation criteria. This application cannot provide 100% accuracy in contact tracing.

5. CONCLUSION

The information on the exploration will be more helpful to the analysts of an application that greatly affects any epidemic circumstance. The exploration clarified the availability between brilliant innovation and our clinical offices. Likewise, clarifies which technique ought to be taken in a pandemic like COVID-19. An application that includes a donation feature where people can get information about plasma and blood donation and they will be able to donate their blood and plasma by a requesting process and a helpline section where people will get information about the nearest Corona hospital with Google map and also will get helpline numbers. Users' concern of digital privacy for any app or situation, especially in the pandemic, is carefully addressed with high importance in our application, leaving zero concern of users for any digital privacy-related

issue. In the application, mobile low-recurrence association has made it a lot simpler to identify COVID-19 patients that expand social awareness. Especially for older and unskilled individuals, this application is much easier to understand. This work will impact the researcher to make web-based innovation during any sort of emergency second in the day to day life.

DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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