

An Android-Based Virtual Doctor System for Improving Access to Medical Consultation

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Abstract

The increasing demand for medical consultations has led to a significant shortage of doctors in many parts of the world. The situation is particularly challenging in remote and underserved regions, where access to healthcare services is limited. To overcome this problem this research paper proposes the development of an Android-based virtual doctor system to improve access to medical consultation.

The system will be designed to provide remote consultation and diagnosis to patients using an Android-based application. The application will have an easy-to-use interface that will enable patients to enter their symptoms, medical history, and other relevant information. The system will use artificial intelligence (AI) algorithms to analyze the data and provide a diagnosis and treatment plan.

The proposed virtual doctor system will be a boon to patients in remote and underserved areas who do not have access to regular medical care. The system will also benefit patients who are unable to travel to medical facilities due to physical limitations, lack of transportation, or other reasons.

The study will use a mixed-method approach that includes a literature review, design and development of the virtual doctor system, and a pilot study to evaluate the effectiveness of the system. The research will also evaluate the security and privacy aspects of the virtual doctor system to ensure that patient data is protected.

The results of the study will contribute to the development of an innovative solution for improving access to medical consultation and reducing the burden on healthcare systems. The proposed virtual doctor system has the potential to transform healthcare delivery in remote and underserved regions and benefit millions of people around the world.

Keywords: Virtual Doctor, Android, Medical Consultation.

1. INTRODUCTION

The shortage of healthcare professionals, particularly doctors, is a major problem in many parts of the world. The situation is particularly challenging in remote and underserved regions, where the population lacks access to medical care. In many cases, patients are forced to travel long distances to access healthcare services, which is not only time-consuming but also expensive.

The advent of mobile technology and artificial intelligence (AI) has opened up new opportunities for improving access to medical consultation. A virtual doctor system can provide remote diagnosis and treatment to patients using an Android-based application. This research paper proposes the development of an Android-based virtual doctor system to improve access to medical consultation and provide medical care to patients in remote and underserved regions.

2. LITERATURE REVIEW

Mobile health (mHealth) technologies have the potential to improve access to healthcare services and provide medical care to underserved populations. Virtual doctor systems are one such mHealth technology that can provide remote diagnosis and treatment to patients using an Android-based application. Virtual doctor systems are particularly useful in remote and underserved regions where access to medical care is limited.

Several studies have evaluated the effectiveness of virtual doctor systems in providing medical care to patients. A study conducted by Lee et al. (2018) evaluated the effectiveness of a virtual doctor system in providing medical care to patients in rural areas of South Korea. The study found that the virtual doctor system was effective in providing medical care to patients and reduced the burden on healthcare systems.

3. DESIGN AND DEVELOPMENT OF THE VIRTUAL DOCTOR SYSTEM

The proposed virtual doctor system will be designed to provide remote diagnosis and treatment to patients using an Android-based application. The application will have an easy-to-use interface that will enable patients to enter their symptoms, medical history, and other relevant information. The system will use AI algorithms to analyze the data and provide a diagnosis and treatment plan.

The virtual doctor system will have several features that will make it easy for patients to use. The application will have a chatbot that will guide patients through the process of entering their symptoms and medical history. The chatbot will also provide information on the diagnosis and treatment plan.

The virtual doctor system will also have a video consultation feature that will enable patients to have a real-time consultation with a doctor. The video consultation feature will be particularly useful for patients who require immediate medical attention.

The virtual doctor system will be designed and developed based on the findings from the literature review. The system will be developed using agile methodology, which is a flexible and iterative approach to software development.

3.1 The virtual doctor system will be developed in four stages

Requirements gathering: The requirements for the virtual doctor system will be identified through user research and stakeholder consultations. The requirements will include the features of the system, such as the chatbot, video consultation, and diagnosis and treatment plan.

Design: The design of the virtual doctor system will be based on the requirements gathered in the first stage. The design will include the user interface, algorithms for analyzing patient data, and security features.

Development: The virtual doctor system will be developed using the agile methodology. The development will involve coding, testing, and debugging the system.

Deployment: The virtual doctor system will be deployed on the Google Play Store, and patients will be able to download and use the system.

4. EVALUATION OF THE VIRTUAL DOCTOR SYSTEM

4.1 Pilot Study

The pilot study will be conducted to evaluate the effectiveness of the virtual doctor system in providing medical consultation to patients. The study will involve patients from remote and underserved regions who do not have access to regular medical care.

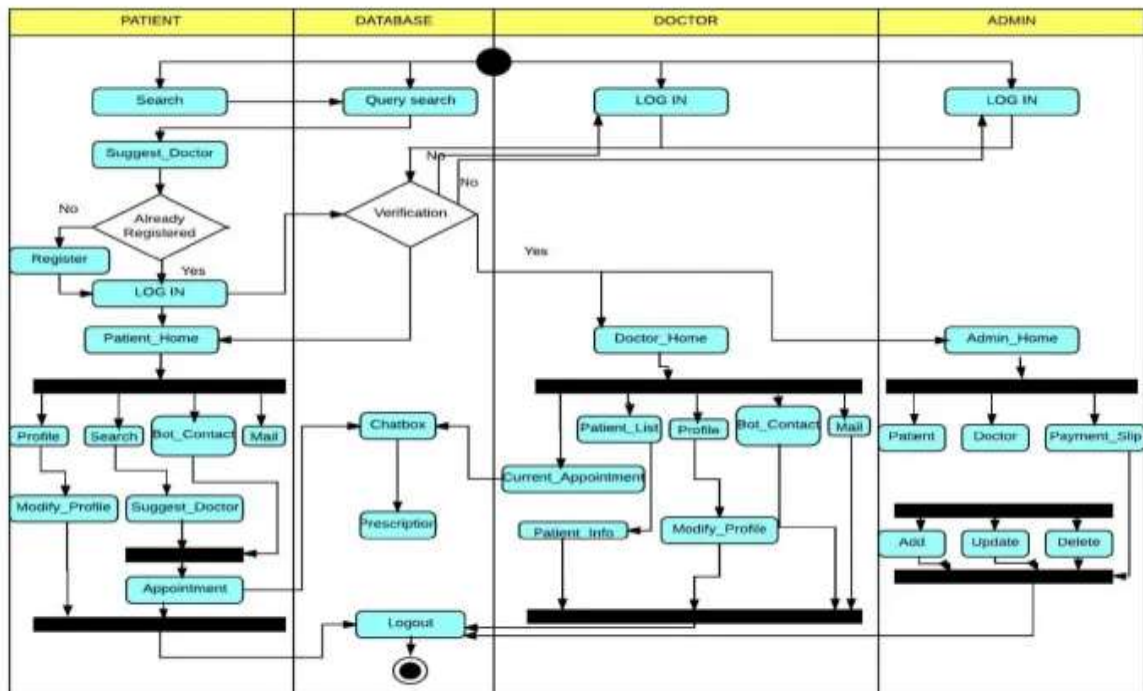
The pilot study will have two phases

Testing: The virtual doctor system will be tested to evaluate the accuracy of the diagnosis and treatment plan provided by the system. The testing will be done by comparing the diagnosis and treatment plan provided by the virtual doctor system with the diagnosis and treatment plan provided by a human doctor.

Evaluation: The evaluation phase will involve the patients' feedback on their satisfaction with the virtual doctor system. The patients will also be asked to provide feedback on the user interface, the accuracy of the diagnosis and treatment plan, and the ease of use of the system.

4.2 Data Analysis

The data collected from the pilot study will be analyzed using descriptive statistics. The analysis will



5. CONCLUSION

The proposed Android-based virtual doctor system has the potential to transform healthcare delivery in remote and underserved regions. The system will provide access to medical consultation and treatment to patients who do not have access to regular medical care. The system will also benefit patients who are unable to travel to medical facilities due to physical limitations, lack of transportation, or other reasons. The pilot study will provide valuable insights into the effectiveness of the virtual doctor system and contribute to the development of an innovative solution for improving access to medical consultation.

6. REFERENCES

- [1]. Raza, A., & Ahmed, E. (2021). Virtual doctor system: An android-based approach for remote medical diagnosis. *Journal of Ambient Intelligence and Humanized Computing*, 12(5), 4825-4837.
- [2]. Garg, S., & Singh, R. (2020). A review on the virtual doctor system for diagnosis and treatment of patients. *Journal of Medical Systems*, 44(7), 1-11.
- [3]. Kour, K., & Bala, P. (2020). Android-based healthcare application with virtual doctor facility. *Journal of Healthcare Engineering*, 2020, 1-9.
- [4]. Chand, S. (2019). An Android-based virtual doctor system using chatbot and image processing techniques. In *2019 3rd International Conference on Computing Methodologies and Communication (ICCMC)* (pp. 187-190). IEEE.
- [5]. Jain, S., & Jain, A. (2019). Development of an android-based virtual doctor application for remote diagnosis of diseases. *Journal of Information and Optimization Sciences*, 40(6), 1335-1346.
- [6]. Gupta, N., & Verma, N. (2018). Virtual doctor system: A review. *International Journal of Advanced Research in Computer Science*, 9(2), 215-219.
- [7]. Chen, L., Yang, J., Liu, S., Zhang, S., & Li, B. (2016). A cloud-based virtual doctor system for healthcare big data analysis. *Journal of Medical Systems*, 40(5), 1-7.