Cardiovascular Disease Decision Support System

Project Context

Information technology offers several prospects for enhancing and revolutionizing healthcare, including lowering human error rates, enhancing clinical outcomes, boosting care coordination, increasing practice efficiency, and collecting data over time. Heart disease is the leading cause of death for men, women, and people of most racial and ethnic groups. Detecting coronary artery disease in its early stages could make the difference between life and death for many of people who are unaware they have this potentially fatal ailment. Conventionally, patients personally seek experts in the field of cardiology wherein they visit the clinic to set appointments for a consultation. The manual method is not ideal for patients and cardiologist may encounter physical barriers and time constraints. A need for an effective and efficient system of consultation is needed.

The capstone project, entitled “Cardiovascular Disease Decision Support System,” is intended for cardiology patients and medical professionals. The technology will provide a consolidated platform for consultations between patients and cardiologists. The project is a decision support system that will assist in appropriately diagnosing a patient with cardiovascular disease and has a greater success rate. All records will be kept electronically by the project. The system will enable the patient and the cardiologist to communicate automatically. Using the system, the patient can arrange a consultation appointment with an available cardiologist and slot. The cardiologist can also give their services while keeping their patients' records online. Physical impediments and time limits experienced in the manual procedure will be eliminated by the suggested solution. The aforementioned effort will make cardiologist consultations simple, quick, and convenient.

Objectives of the Study

Objectives of the Study

General Objective – The main goal of the project is to design and develop a system to be used for cardiology consultation.

The project specifically aims the following objectives:

1. To design and develop a system that will serve as a platform for cardiology consultations.
2. To system will help patients to conveniently book their cardiology consultation.
3. The system will assist the cardiologist to address the queries of the patients.
4. The system will allow electronic record keeping which is safe and secure.
5. To develop a system that will enable cardiology consultations fast, easy and convenient.
6. To evaluate the system in terms of quality, reliability, maintainability, efficiency and productivity.

Significance of the Study

Cardiologist. The success of the project will help them be more effective in providing service in their field of expertise. The system will assist them in attending to their patient's needs. The system will also help them keep the medical records of their patients securely.

Patients. The system will help them to conveniently avail cardiology consultation which is very important for their health to be known at an early stage.

Researchers. The success of the project will be charged to their experience as developers. Their experiences in conducting the project will further improve their knowledge and skills.

Future Researchers. The study will serve as their guide if they wish to develop their own Cardiovascular Disease Decision Support System.

Features of the System

Cardiovascular disease (CVD) is a leading cause of death and disability worldwide, and decision support systems can play a crucial role in improving the management of CVD. A CVD decision support system is a computer-based tool that helps healthcare providers make more informed decisions about the diagnosis, treatment, and management of CVD.

Here are some potential features of a CVD decision support system:

Risk assessment: The system should be able to assess an individual's risk of developing CVD based on their personal and family medical history, lifestyle factors, and other risk factors such as high blood pressure and cholesterol levels.

Diagnosis: The system should be able to assist with the diagnosis of CVD by providing information on common symptoms, diagnostic tests, and imaging techniques.

Treatment recommendations: Based on an individual's diagnosis and risk profile, the system should be able to provide treatment recommendations, including lifestyle modifications, medication, and procedures such as angioplasty or bypass surgery.

Medication management: The system should be able to provide guidance on the appropriate use of medications for CVD, including dosing, interactions, and side effects.

Disease management: The system should be able to provide ongoing support for the management of CVD, including recommendations for lifestyle changes, follow-up care, and monitoring of treatment effectiveness.

Patient education: The system should be able to provide educational materials and resources to help patients understand their CVD, treatment options, and how to manage their condition.

Integration with electronic medical records: A CVD decision support system should be able to integrate with an individual's electronic medical record, allowing healthcare providers to access relevant information and track progress over time.

Conclusion

Heart disease is the top cause of death for men, women, and people of most racial and ethnic groups. Early detection of coronary artery disease could be the difference between life and death for many people who are unaware they have this potentially fatal sickness. The researchers conducted the study to evaluate the present cardiac consultation system. The investigation revealed that there are issues and obstacles in the current system that must be addressed. To address the aforementioned issues, the study's researchers created a Cardiovascular Disease Decision Support System. The study's findings revealed that the produced system satisfied the demands and requirements of the respondents and intended users. The system addressed the issues and concerns raised.

The researchers of the study concluded that the implementation of the developed system will significantly benefit patients and cardiologist for their consultation. The system will allow both parties to conveniently process their appointments, records, and consultation. The developed system is indeed an efficient and effective consultation system.

Recommendations

The Cardiovascular Disease Decision Support System is highly recommended by the project's supporters. The created system has the ability to eliminate the manual approach of cardiac consultation entirely. The researchers strongly advise using the system to help patients and cardiologists during the consultation process. The system will also maintain all transaction records online, which is safe and secure.

Summary

The "Cardiovascular Disease Decision Support System" capstone project is meant for cardiology patients and medical professionals. The system will provide a centralized platform for patient-cardiologist conversations. The project is a decision support system that will aid in correctly diagnosing a patient with cardiovascular illness and will have a higher success rate. The study's experts concluded that implementing the proposed system will considerably benefit patients and cardiologist consultations. The system will make it easier for both parties to process appointments, records, and consultations. The proposed system is an efficient and successful consultation system, and the researchers strongly advise using it to aid patients and cardiologists in the consultation process. The system will also maintain all transaction records online, which is safe and secure. Overall, a CVD decision support system has the potential to improve the quality of care for individuals with CVD by providing timely, evidence-based recommendations and support for self-management.