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Medical Management System

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Abstract

We think COVID-19 19 ruined our medical system. But the truth is, it just visualizes the true scenario of our medical system. We cannot stop this by a day. But we can learn from this situation and prepare for the future. We can change our medical system and manage it by an app. We can make our whole medical system in a digital way.

In this project, we try to implement an app that can manage the medical system, store the patient's past, and present data. Every patient, doctor, and pharmacy have their own profile and see their data. A proper way to distribute medicine for everyone.

1. Introduction

We all face really bad times in this year. We can't invent a vaccine and distribute it throughout the whole country in a year. But what we can do is that we can manage the whole Medical system by an app.

In this project, we want to make an app that can store the whole patient past and present medical record. We can digital the whole medical system. We can collect the information of every patient, and doctor and we can use this information in the future.

The idea we get from news where we see Taiwan has converted their whole medical system into a digital way. They manage their full medical system by their computers. Every patient has a medical card. And in that card, everyone has their past and present medical records. It really helps them to monitor and track every patient.

We know, maybe in our country, it is not possible to give a computer in every doctor's chamber. Or maybe we have not enough money and technology to implement this. But we can do it in a lite way. We can make an android and iso app to do the same work. I think every doctor might have an android phone.

With this app, we can have the information of every patient. Further, we can analyze this data. We can find out why an individual patient has these diseases or is he only infected by a disease or their family member also have the same problem. We can use Ai and machine learning to analyze this data and find out which district or which area has been infected by diseases. Further, if we have a lot of MRI and X-ray scans of patients then we can use this in AI to analyze every scan that sometimes not possible for humans. We think it may open new possibilities and doors in our future.

2. Objective and Problem discussion

- **Local Doctors**

  In villages, almost every people go to the local doctor if they feel ill. This local doctor has no doctorate certificate, only they might have a license to sell medicine. But a lot of people open a chamber and treat patients like they are doctors. They give medicines at their sweat wills. Sometimes it works and sometimes some of them face some dangerous situations for false treatment.

  To solve this, in our app everyone has to login by their id and password. Every registered doctor also has to login by their id and password. When a doctor checks a patient, he will add all the medicine and other details into this app. And he can see all the previous records of that patient to know if that patient has any other diseases in the past.

- **Buy medicine form anywhere**

  We all buy medicine from pharmacies without any kind of restriction. Sometimes people do not understand and take antibiotic-type medicine, which may harm their immune system badly. Sometimes people also use medicine as a drug.

  To solve this, in our app a patient can only buy those medicines that a registered doctor has record into their profile. He cannot buy any medicine without his profile. They're also a pharmacy account. So, every pharmacy shop should be registered by this app and they also can sell medicine by this app.

- **Where should find register doctor all time**

  Sometimes it not possible for us to go to the doctor for a simple headache type problem. In the village maybe there is no doctor there.

So, for this, we also have an online helpline section where patients can tell their problem by a phone call or video chat to communicate with a distant doctor. And that doctor can also add details to their account and recommend some medicine, then they can buy those medicine from a pharmacy.

Note: In this process, the doctor will suggest only if a patient has a simple issue. If the doctor thinks he or she should have to go to the hospital then he will recommend there.

- **Too much cost in Private medicals**

  We see a lot of people complain that Private medical hospital charges a lot of money. Sometimes people don't know why they charge that huge money.
  So, we ensure that every medical type cost should be added in this app. If a patient wants to buy some medicine then this app will show the total cost of that and the patient will pay that money to the hospital or pharmacy.

  In this process, we can monitor which hospitals charge how much for their services.

- **Proper data of a patient**

  In our country, if anyone wants to research any topic then he faces a problem to collect data. We all know, to determine a good result from research then we have to work with lots of data.

  With this app, we can have lots of data. And that will be free to use for the research purpose with some conditions. We think it will help a lot of people with their research and other projects.

3. Proposed Method

- **Store data from patient**

  There should a doctor profile, a patient, and a pharmacy profile in our app. They all will be registered by an admin.

When a patient goes to the hospital for a check-up. Then the doctor can see their previous records. And then after the check-up doctor will add new details to the patient's profile by using this app. In this way, we will store information about the patient.

After that patients can see their records. He or she can see which medicine that doctor added to their profile. When they have taken those medicine. They can also see if there is any kind of recommendation or diet from the doctor. In some case-patient doesn't have any mobile. Then he can buy medicine just tell their id to the pharmacy.

To sell any medicine a person has to login in by a pharmacy account and then if they give the patient id then this app will show the medicine that a patient needed.

- **Record the cost**

Every payment should be done by this app. Like if a patient admits into a hospital. Then the hospital authorization will add every cost into their profile with proper details. After that patient will pay the amount that will show in the app.
If any patient thinks, Hospital adds unnecessary charges for something then he or she can complain about that.

- **Help Line**

There will be a helpline section of our app. Where a patient can call a doctor for some help. He can talk on a phone or a video chat with the doctor.

- **Proper details of a disease**

Sometimes people don't understand what kind of diseases they are suffering. So, they use some old technic that may harm their body.

So, we will add a section where people can learn about their diseases. How those diseases affect their body and how to overcome that situation. There will be proper documentation and tutorial video to explain many kinds of diseases.

- **Question ask section**

Fake news and rumors are spread in those days a lot. People are confused about which one should believe and which one not. And there is also fake news about diseases and health topic.

For that, we will have a stack overflow like a section where people can ask any kind of health-related question and some professionals will answer their questions. If any fake news spread then people can just ask any question to remove their confusion.

4. Result Discussion

We have done the main part to implement this app and that is to store the patient's past and present data.

We have added some demo doctors, patients, and pharmacy id into our app, and store some information there.

Now, in our demo app, we can store data of patients. We use JSON and Database both in our app to store this data. For the structural data like doctor name, id, password we use SQLite3 in our python project. Then for the non-structural data like the patient's previous data, we use the JSON file. Another reason to use JSON is that, if we make an android app then this JSON file will save into the database and a copy will save into the mobile. So, users can also see their previous data without having any internet.

We also make some restrictions so that only a doctor can see the details of a patient. Without id and password, no one can see their profile. Even a pharmacy shop can only see the current medicine of a patient, they will not see the previous records. We do this for the privacy issue. Maybe some patients don't want to show their records to someone.

Then we implement a demo GUI for the desktop to visualize the workflow easily. It just a demo user interface. We will implement the full GUI interface into an android app.

All the backend part will be controlled by a python in the server. All just we need a huge data storage to store this huge amount of data of every patient
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Future Improvements

- In the future, we will develop a section where all the payments and costs will be added. And the hospital will add their cost into that.

- There will be an option where people can talk with doctors remotely.

- In there, people can learn about their diseases

- People can also ask questions to experts.

5. Related Research

- **CoronaBD**
  In that people can get help from a doctor. People submit their problem and this app give a suggestion.
  We will also add this to our app. I don't think this app store the proper data of a patient. But we will store this data in a proper way. Because no one can log in to our app without having a registered account. [1]

- **Electronic medical records project of Taiwan**
  Taiwan's government launched the project, and several research groups began to design a basic EMR format in 2004 by collecting more than 13,000 medical record formats from more than 200 hospitals from across the country. Researchers classified the forms into various categories, such as outpatient, emergency, hospitalization, nursing, treatment application, medical reports, consent letter, and so on. Based on discussions with experts in the areas of medicine, computer science, and legal issues, they then developed 48 EMR formats. [2]

6. Conclusion

As it is a project about our hole medical system, we need authorization from the government. Maybe we also need some laws to force some people to follow the system. And a huge amount of data storage to save a lot of amount of data.

All we want to make some change in our medical system. We are in a developing country so we should make our medical system in a digital way.

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