Doctors+

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Abstract: "Doctors+". The primary goal of our project is to give up to 90% of paper-less hospitals. It expects to give minimal effort solid mechanization of existing frameworks. The framework gives incredible assurance of information at each degree of a client framework collaboration.

1 Introduction

It is essential for hospitals to screen their everyday exercises and the records of their patients, specialists, attendants, ward young men and different workers, who are running the hospital easily and effectively. However, following all exercises and their records on paper is exceptionally awkward and mistake inclined.

It is very inept and a time-consuming process that is seeing a steady increase in the number of hospitalized population and people. The chronicle and upkeep of every one of these records are exceptionally problematic, wasteful and mistake inclined. It isn't financially and conceivable to keep up these records on paper.

In this way, remembering crafted by the manual framework as the premise of our undertaking, we have built up a computerized variant of the manual framework assigned as "Doctors +".

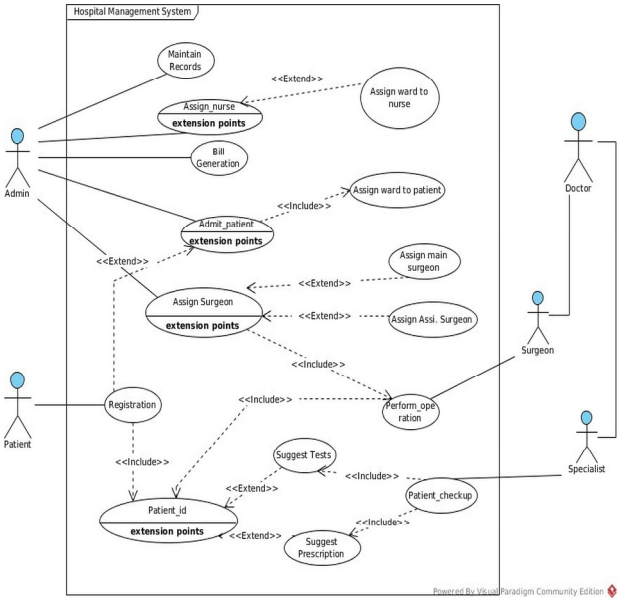

Fig.1. Use case diagram

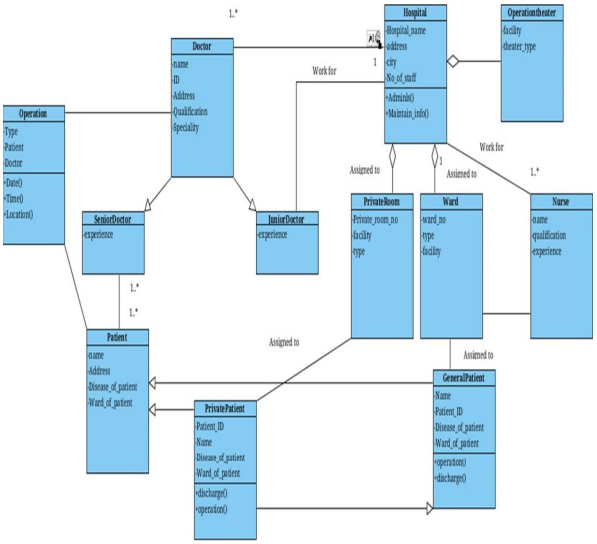

Fig.2. Class Diagram

2 Functionality

Doctors+ is a user-friendly android application that can able to manage patients. The application will start with a beautiful animated screen and there will be an option to continue where users can find their roles i.e. Doctors, Receptionist, Nurse, Pharmacist, Emergency department etc. And from their responses, the application will direct them to the login page where they can access their account. Several options will be given which includes sign in with email and password, sign in with phone number, Google/Facebook/Twitter/Microsoft. User needs to be registered with the system first.

Several options will be given to the reception department which includes adding patients to OPD, adding patients to IPD, Leave applications, Chats, IPD Requests, Profile etc. where reception department can add a patient to the respective department taking details like Name, Email, Phone Number, Age, Gender, Relation -

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Status, Blood Group, Allergies, Weight, Blood Pressure, Pulse, Complaints, New or Old visit, referred by, Image etc. These details will be updated to the respective doctor on a real-time basis. Same procedure to be followed in the IPD section. Reception department will be able to view leave applications of doctors hence no appointments can be booked on those days. Reception department will be able to communicate with other hospital parties through the real-time chat option given in the application. Reception department will be able to the IPD requests from the doctor if in case a patient to be hospitalized. The receptionist will be able to update their information on the profile option in the application.

The portal for doctors will start will the list of appointments and on clicking/tapping on a particular appointment, doctors will be able to view the detailed information of that particular patient which includes details like Name, Email, Phone number, Image, Weight, Blood Pressure, Allergies Medical History etc. Several options will be given for a particular appointment which includes IPD Request in which doctors can notify the reception department to admit the patient, Connect to Pharmacy in which doctors can complete the appointment by suggesting some medicines to the patient and notifying the pharmacy department as well, Complete the appointment etc. Doctors will be given several options to view the admitted patients in IPD. Doctors will be notified if there are any emergencies in the hospital. Doctors will be able to communicate with other doctors and other hospital parties as well. Doctors will be able to update their information on the application as well. Doctors will be able to search a particular record of a patient in case of multiple records. Doctors will get a smart history portal for keeping and viewing information of patients. Several controls will be also given to the nurses where they can view assigned patients by a doctor and will be able to update the information such as Blood Pressure, Pulse, Recovery status etc. of a patient on a real-time basis. Nurses will be able to communicate with doctors and other hospital parties as well. A nurse will be able to update their information on the application.

Pharmacy department will be able to view the prescription of a patient so that that they can keep ready those medicines before the arrival of that particular patient. Pharmacy department will also communicate other hospital parties through a chat option. Emergency ward boys will be able to add emergencies in the hospital. They will be able to view the records of the emergencies as well.

The advantages of the applications are paperless(90%), cost-effective, time-effective, reduce power consumption, easily accessible to doctors, easy access to patient data, automated version of the existing system, excellent security of the data, better storage facilities, better communication between doctors and other parties as well, improved patient care, reduces the scope of error, improved efficiency.

Considering the above, Doctor application "Doctors+" can prove useful to all doctors, allowing them to give up keeping patient records on paper.

3 Modules

3.1 Category page of the application

The interface includes cross-communication of data between 6 categories including the Doctors, Receptionist, Nurse, Pharmacist, Emergency and Admin.

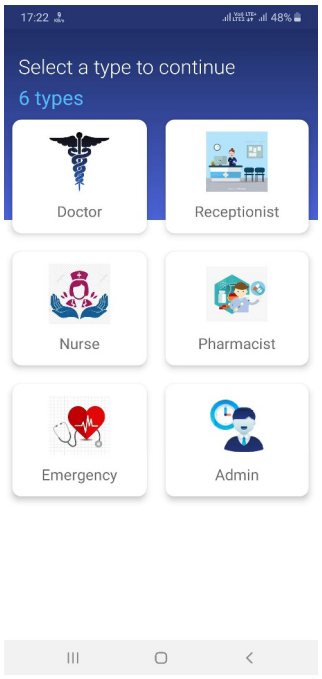

Fig.3. Category page

3.2 Login portal

The login portal is available for the use of all parties involved.

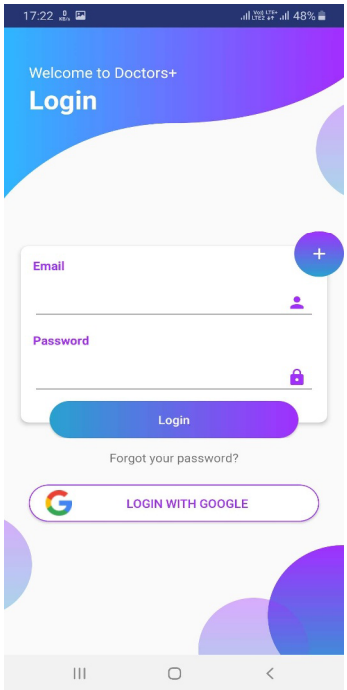

Fig.4. Login page

3.3 Reception dashboard

The Reception dashboard includes facilities of adding to the OPD, adding to the IPD, leaving applications, making IPD requests, accessing chats and profiles.

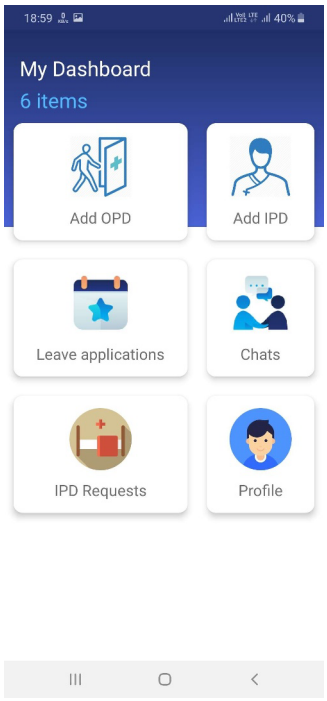

Fig.5. Reception dashboard

3.4 Adding patients to OPD

The Patient's referral information can be registered in the Out-Patient Department which can be accessed by various parties.

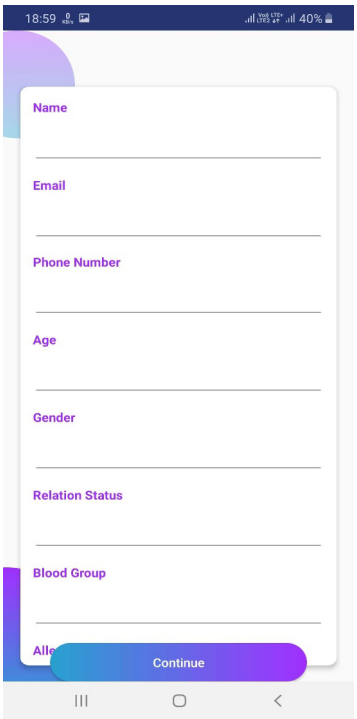

Fig.6. OPD admission

3.5 Adding patients to IPD

The Patient's referral information can be registered in the In-Patient Department which can be accessed by various parties.

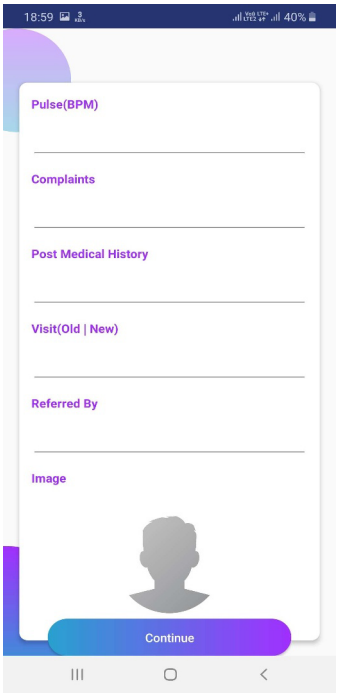

Fig.7. IPD admission

3.6 Home page for doctors

The appointments and schedules can be kept track of with the date and time details.

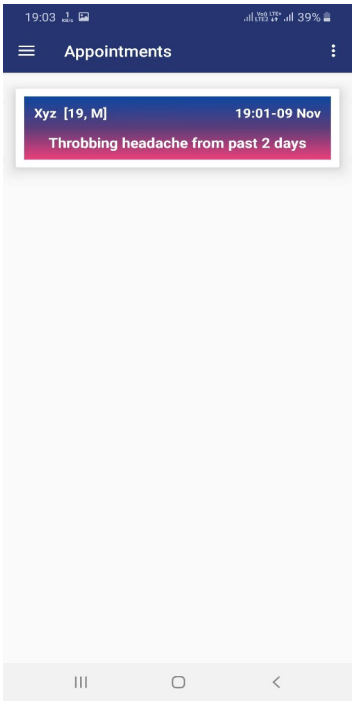

Fig.8. Home page for doctors

3.7 Detailed information on appointments

The detailed information regarding the medical issues and specifications of the patient can be accessed by the doctor while being updated in real-time.

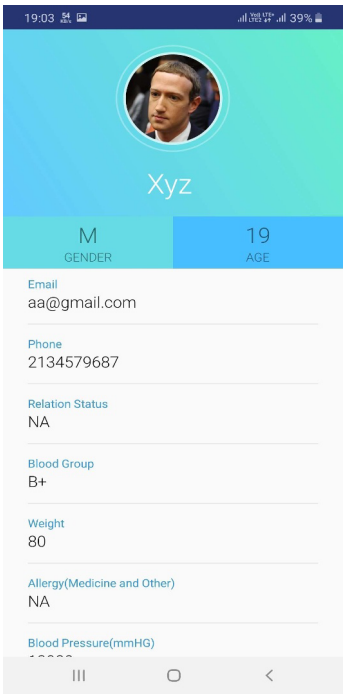

Fig.9. Appointment details

3.8 Drawer for doctors

The drawer slider displays an array of features including cross consultancies, emergencies and other account settings.

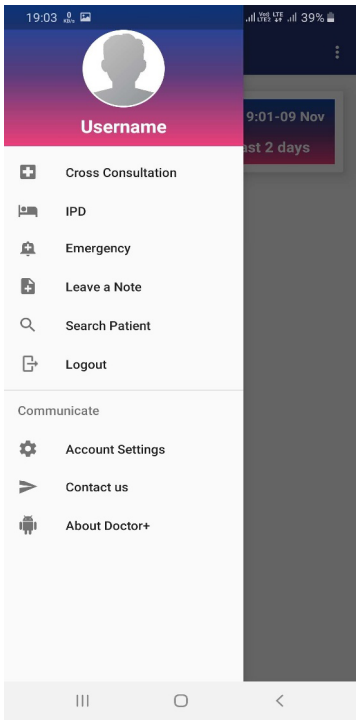

Fig.10. Drawers for doctors

3.9 Other controls given to the doctors

Appointments can be managed by giving several controls to the doctors which include Transfer to IPD, Connect to pharmacy, Complete appointment etc.

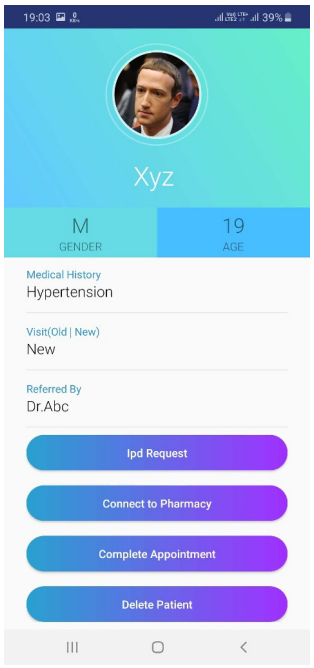

Fig.11. Options to doctors

3.10 Dashboard for nurses

Nurses will be able to track the assigned patient from the doctor and manage better.

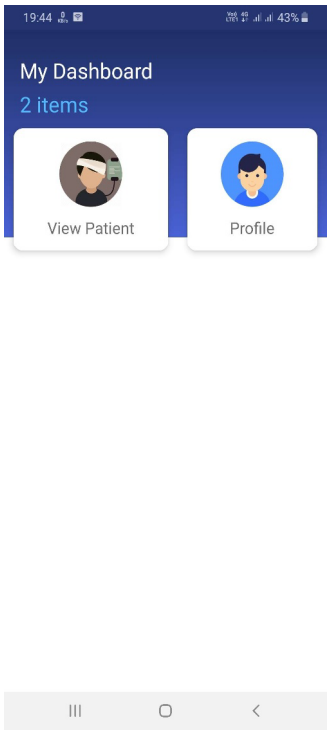

Fig.12. Nurse dashboard

3.11 Dashboard for pharmacists

The pharmacist can keep ready those assigned medicines by viewing prescription.

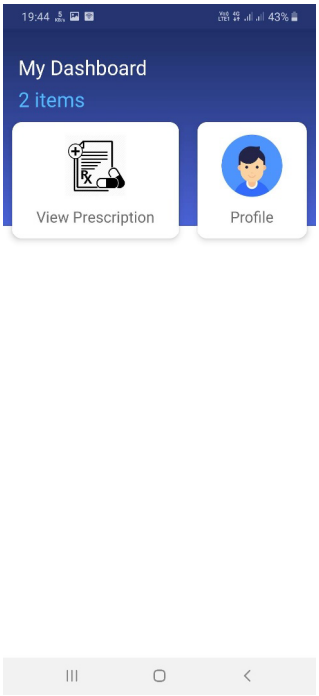

Fig.13. Pharmacy dashboard

3.12 Dashboard for emergency department

Emergency ward boys can add emergencies and can also view emergencies in the hospital.

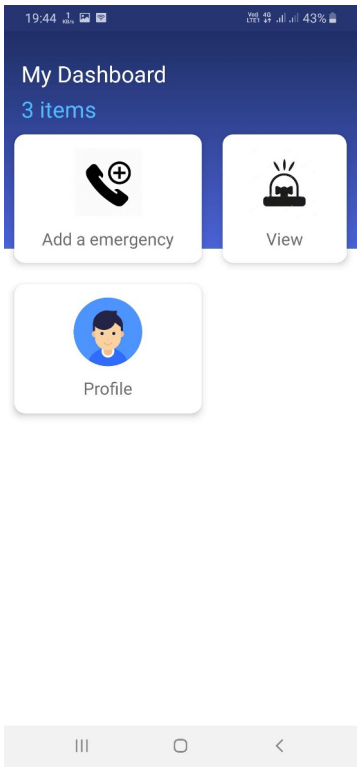

Fig.14. Emergency dashboard

4 Future enhancements

This will be an intelligent digital app helping doctors with not just appointments and patient details as a description but moving from 'descriptive' to 'predictive' to 'prescriptive' to 'cognitive'. It will help doctors to predict if there is any emergency in patients sitting in OPD. Predict what type of illness will be there in what season so that doctors can keep medicine stock ready in the hospital. Predict the date of discharge of an IPD patient Predict the issue and suggest medicines as per the complaints. Diet recommendation for a doctor to prescribe a diet based on real-time reports of patients. Waiting time for patients sitting in the OPD area through SMS and Email. Prescription, Reports (Pathology, X-ray, MRI, etc.) and medicine invoice in .pdf format to patients through SMS and Email. Messages to be secured with end to end encryption. AI-Powered Chatbots for patients etc.

5 Conclusion

Thus Doctors+ can be used to provide paper-less hospital up to 90% and can provide better healthcare to the patients.

References

1. D. Griffiths, D. Griffiths, *Head First Android Development,* **2** (2017)
2. G. D. Kunders, *Hospitals: Facilities Planning and Management* (2017)