

IoT based Patient Monitoring System

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Abstract—This IoT based patient monitoring system is completely focused upon the concept of remote connectivity where the patients will be able to make appointment, video conferencing with their experts, as well as submit some reports through device connected to our system, with compatibility of payment gateway as well.

Keywords—IoT; Patient; Doctor; conferencing; Sample Reports; Payment Gateway; Treatment; remotely.

I. INTRODUCTION

Health-care technology is one of the most popular studies nowadays. With the development of health-care technology, the life span of people has successfully extended. However people in the rural areas are still having hard time to obtain professional health-care services due to the barrier of distance and lack of doctors. A remote patient monitoring system is one of the best solutions to overcome this issue. This paper proposes an Internet of Things(IoT) based real time patient monitoring system that is able to generate the integrity of real time electrocardiogram. It also consists of the payment gateway through which the end user could successfully pay their doctors and medical bills remotely through our payment platform making it easier for the user not to switch platforms for different purposes .

We have designed such a system to make ease of access all things at one place. Whether there will be pandemic or any kind of curfew our clients will not face any kind of difficulties in contacting their doctor's. In our platform there will be way of contacting multi-specialists doctors each one excellent in their own fields of specialization. Making it easier for our user to meet his demands or needs at a click at one place. And our system will be user friendly with query support 24/7 hours. Making it much more user friendly with cloud storage support facility, then the user will not have to worry if the system gets lost or gets broken, as there will be all his data stored in our cloud storage easily accessible from any part of the country through their respected remote devices. And also the system will consist of alert mode in which if activated by the user it will directly notify nearby medical emergencies centers to check upon the user. There will be two modes of the system:

1) Demo mode

2) Prime Mode.

The Demo mode will consist just the tour of our system where the user will be able to get the overview idea and only basic features will be available.

And in the Prime mode will get complete access of our system by paying some subscription amount.

II. PROPOSED SYSTEM

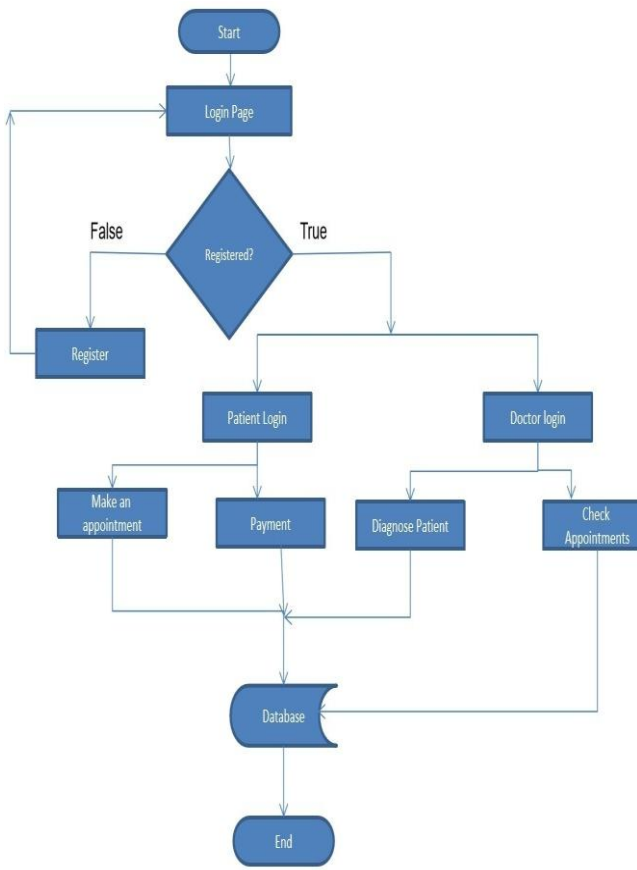
This project presents a design and implementation of healthy monitoring system, within the context of IoT environment. This system will provide a constant health monitoring facilities for the patient who are in ICU or bedridden at home remotely from any place. ECG sensor and digital thermometer are the two sensors that have been used to allow real-time monitoring of ECG signal and temperature of the patient.

Moreover, the data are continuously updated to the cloud at the regular time interval. This helps the doctors, nurses or the relatives of the patient to monitor the health condition of patient and also helps to take any action at the appropriate time. The system also sends an automated notification via texts to doctors or the relatives if the ECG signal and the temperature reading go above or below the threshold value. It will help doctors in many ways and will enhance the efficiency of monitoring and treatment for patients.

The doctors or nurses can observe the ECG signal of any patients at any time any place through the computer or smartphone, without going to the wards. This system is able to reduce the patients traveling time and cost especially for those patients who are from suburban or rural areas. Doctors can monitor the ECG of the chronic cardiac patients in distance via Internet. The proposed system has the potential of improving the quality of healthcare services all over the nation.

A. Data flow diagram:-

Following data-flow diagram illustrates the overall flow of our system and shows the complete overview.



B. Modules:

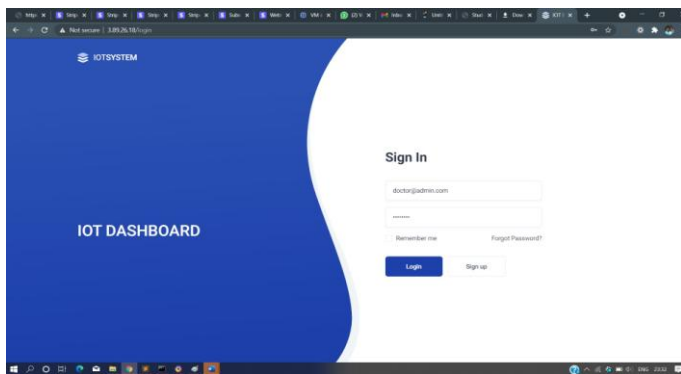


Fig.1

This module is the sign-up page for doctors and patients.

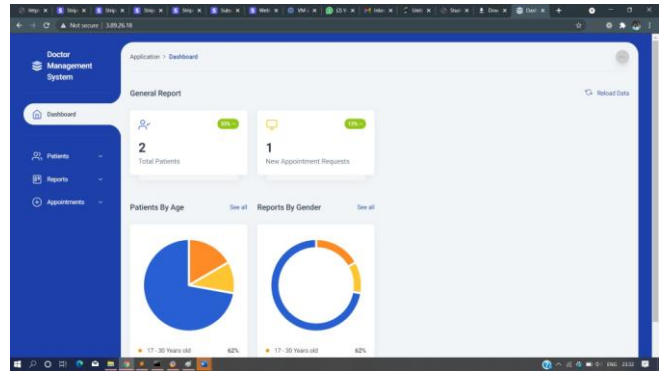


Fig.2

This module shows the doctor's dashboard.

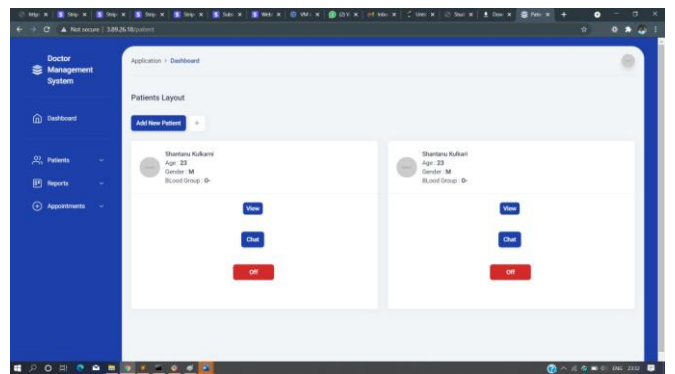


Fig.3

This module shows the patient dashboard.

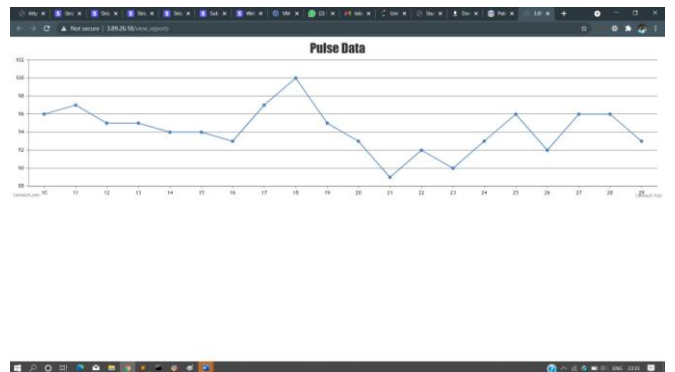


Fig.4

This modules shows the graph report of the patients.

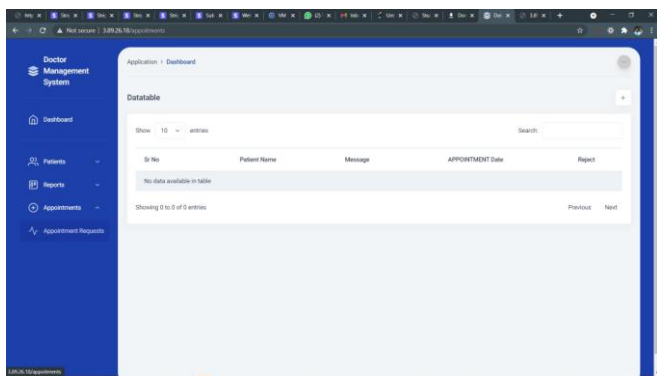


Fig.5

This module shows the total log of patients.

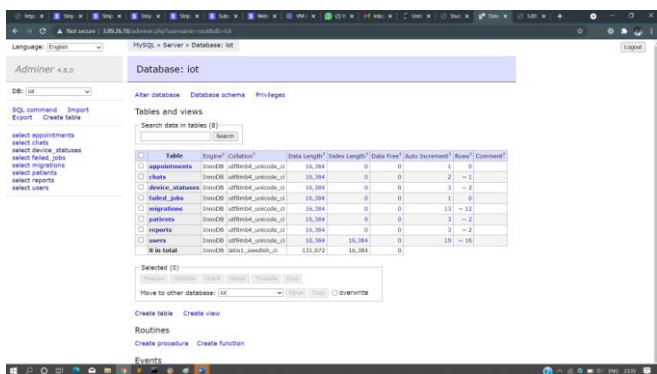


Fig. 6

This module shows the backend of our system

III. USES

- 1) The user will not have to travel the long distance for daily diagnosis or simple check-ups.
- 2) He could diagnose the issue from his home through our device to the doctor to “N” number of specialists available.
- 3) It will save a lot amount of time of patients as well as doctors.

- 4) Online Payment Gateway will be available and digital receipt will be provided.
- 5) The user will be notified prior to his appointment or the diagnosis, so there are no chances of getting it missed.
- 6) The user will not have to worry more about his treatment or the availability of doctors.
- 7) Through this system even doctors will be able to give much more time to their patients with delay in appointments.
- 8) Even long distance meet up with doctors will be reduced through our system so it will save lots of expenses of our users.
- 9) And also not much infrastructure set up will be required they could easily attend from any remote locations easily without any hesitation.

CONCLUSION

This project covers all the difficulties faced by the users who are in need of hospitality or need to avail their facilities but are unable to get benefits of it as due to travelling from the long distances or getting stuck in long city traffic or unable to bear the expenses of the hospital infrastructure which are skyrocketing nowadays.

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