Advanced Healthcare Management System

Rushikesh Bahekar, Radha Bharsakle, Mrunal Wadhawane, Sneha Zagade , Rama Gaikwad

Department of Computer Engineering, Anantrao Pawar College of Engineering and Research, Pune

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Abstract - Healthcare Management Systems are the systems which help the users to avail the facilities online. With the help of such systems, we can avoid wastage of time, money and resources. In this paper we have described such a Healthcare Management system which will use a device for sensing body parameters which will be sent to the doctor. The doctor will examine the details and will send the prescriptions or alerts in case of emergency to the user or Asha worker. Also, in the case of emergency, an alert will be sent to the ambulance itself with the help of AI.

*Key Words***:** Easy access to data, reduces communication time, handling of emergency cases through AI, easy consultation.

INTRODUCTION

Due to various technologies, many of our problems are solved in a very efficient and easy way. Such technologies have brought a huge improvement in the medical field too. We can use web development, Artificial Intelligence, Mobile app development, Internet of Things and many more for enhancing the use of healthcare facilities. Web development is the work through which we develop websites for the internet. Such websites provide reliable and important information which is required in our daily life. Artificial Intelligence is the way of using human intelligence in machines through which they can think like humans and mimic their actions. Mobile App development is the process of developing apps which can be used in mobiles for fetching information and various other activities. Internet of Things is a system of internet-connected objects which collects data and transfers it over wireless networks without human and computer interaction.

Due to less developed infrastructure and communication systems in villages there is less of the healthcare system. So, we are developing an Advanced Healthcare Management System for the remotely located villagers to help them utilize healthcare facilities. We are developing a system where, after checking the patient's condition worker will feed that information in the system and as we are going to use AI, system will do the analysis on own and if the patient's condition is critical and an urgent treatment is needed then an 'alert message' will be sent to the doctor as well as to the ambulance, this will save the communication time and if the doctor is not available at that time then at least the ambulance will come and the patient can be immediately admitted to the hospital. And as the number of workers in a village are less, sometimes it may happen that a worker is not able to visit that patient then also some other person can feed the information in the system and communicate with the doctor as we are also going to keep a guest login.

LITERATURE SURVEY

1. Paper name: Current Health Scenario in Rural India.

Author: Ashok Vikhe Patil

Description: In this paper, they analyze the current health status of India, with a special reference to the vast rural population. The author concentrated on improving the prevailing situation and the problem of rural health, to ensure good health for the poorest of the population.

2. Paper name: BMC Medical Informatics and Decision Making

Author: Etienne Minvielle, Aude Fourcade, Benoit Lalloue

Description: Remote Patient Monitoring Systems (RPMS) based on e- health, Nurse Navigators () and patient engagement can improve patient follow-up and have a positive impact on quality of care (by limiting adverse events) and costs (by reducing).

3. Paper name: BMC Medical Informatics and Decision Making

Author: Abu Saleh Mohammad Mosa

Description: Many medical applications for smartphones have been developed and widely used by health professionals and patients. The use of smartphones is getting more attention in healthcare day by day. Smartphones are used in the medical field for evidence- based medicine, in addition to their use in mobile clinical communication. Also, smartphones can play a very important role in patient education, disease self- management, and remote monitoring of patients.

4. Paper name: GuideBeacon: Beacon- Based Indoor Wayfinding for the Blind, Visually Impaired and Disoriented.

Author: Nenavath Sreenu

Description: This article examined possible ways to improve healthcare services in rural areas.

5. Paper name: Functional Desciption of Online Medical Management System Using Modern Technology

Author: Priyanka Patil, Sruthi Kunhiraman, Rohini Temkar

Description: This paper describes an idea about a web-based platform to support making online, cloud computing and android programs for hospitals and medical systems. This manages the schedule of doctors, maintaining the patient's records.

6. Paper name: The Analysis of Appointment System to Reduce Outpatient Waiting Time at Indonesia's Public Hospital

Author: Fatma Poni Mardiah , Mursyid Hasan Basri

Description: This provides a study of the major causes of patients' length of time for medical treatment in an outpatient clinic at one of Indonesian public hospitals and also provides recommendations on the best strategy to improve the appointment system so that it can maximize the effectiveness and efficiency of resource and capacity.

7. Paper name: Simulation Study of the Optimal Appointment Number for Outpatient Clinics

Author: Zhu Z. C., Heng B. H., Teow, K. L.

Description: This paper study the appointment scheduling systems in outpatient clinics to determine the optimal number of appointments to be schedule in one session with criteria of different performance indicators and consult room configurations.

EXISTING SYSTEM
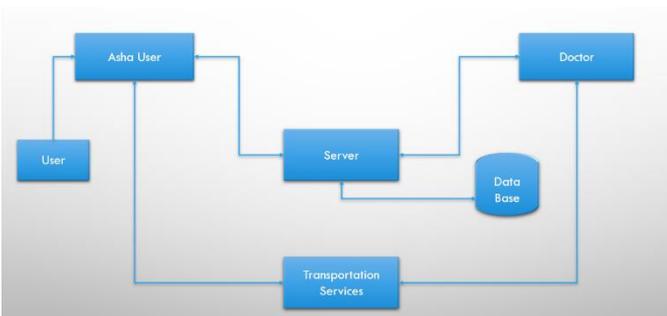
Fig -1: Existing System

In the existing system, what happens is, in villages there are Asha workers and if someone is not feeling well then Asha worker goes to that patient's house, check the patient's condition and then communicates with the doctor and sends the details through server. After receiving the details, the doctor provides the prescription to the user through Asha worker.

PROBLEMS IN EXISTING SYSTEM

The main problem of the existing system is that if the doctor is not available, then the patient cannot be treated in time and in case of emergency the patient's health will degrade even more. As the number of Asha workers is limited, another problem arises when the Asha worker is not available due to which the patient is not able to communicate with the doctor.

PROPOSED SYSTEM

[A] PROBLEM DEFINITION:

To create an Advanced Healthcare System for the remotely located villagers to help them utilize the healthcare facilities.

[B] SYSTEM ARCHITECTURE:
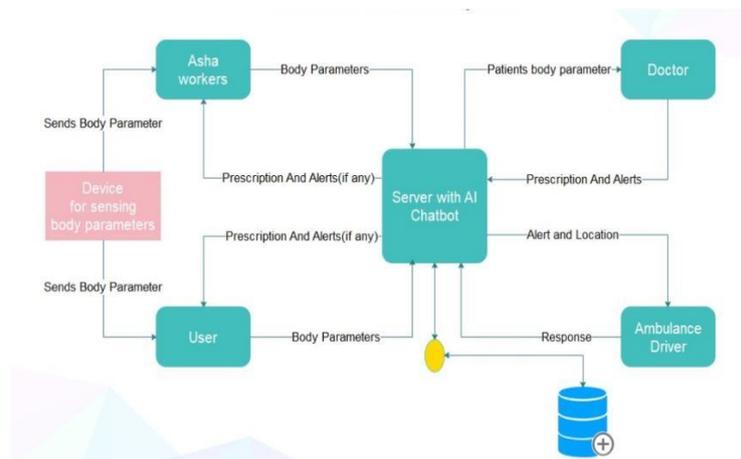

Fig.: Proposed System

[C] EXPLANATION OF SYSTEM ARCHITECTURE:

We are developing a system where, after checking the patient's condition Asha worker will feed that information in the system and as we are going to use AI, system will do he analysis on its own and if the patient's condition is critical and an urgent treatment is needed then an 'alert message'

will be sent to the doctor as well as to the ambulance, this will save the communication time and if the doctor is not available at that time then at least the ambulance will come and the patient can be immediately admitted to the hospital. And as the number of Asha workers in a village are less, sometimes it may happen that Asha worker is not able to visit that patient then also some other person can feed the information in the system and communicate with the doctor as we are also going to keep a guest login.

DIAGRAMS

1. Class Diagram:
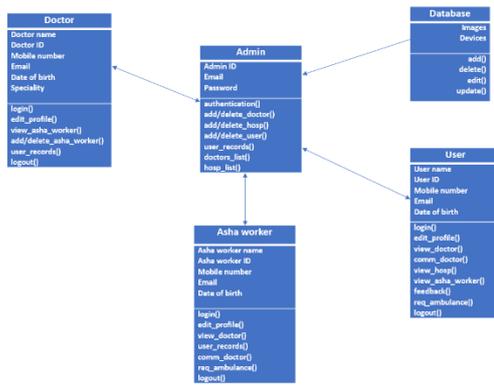
2. Use Case Diagram:
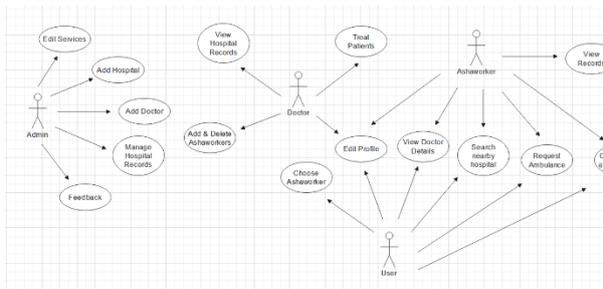
### 3. Data Flow Diagram:
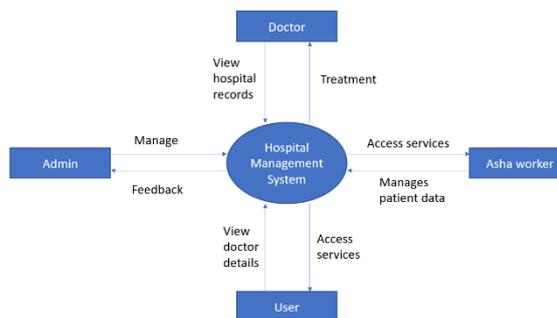
**Fig.: Data flow diagram level 0**
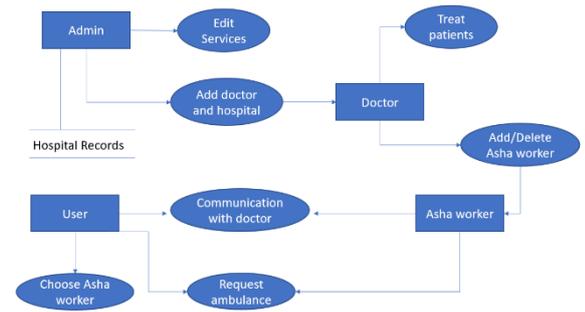
Fig.: Data flow diagram level 1

4. Activity diagram:
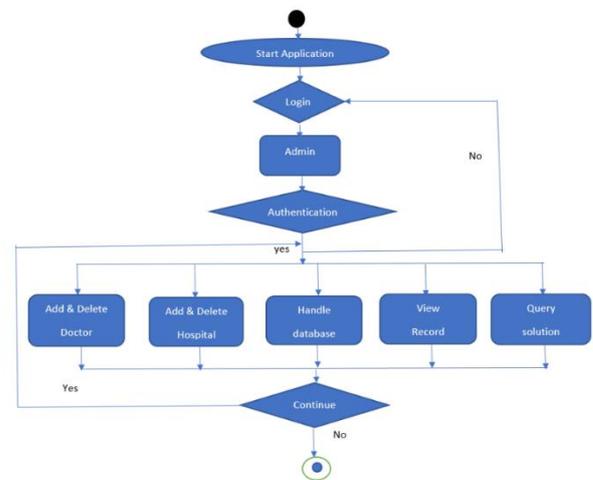
Fig.: Activity diagram of Admin
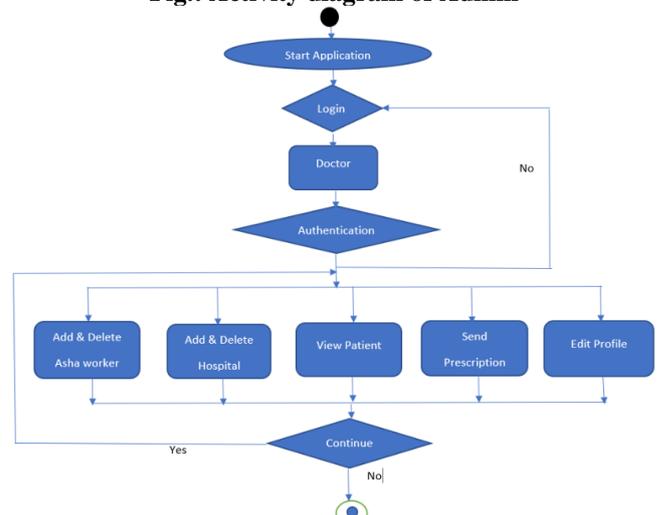
Fig.: Activity diagram of Doctor
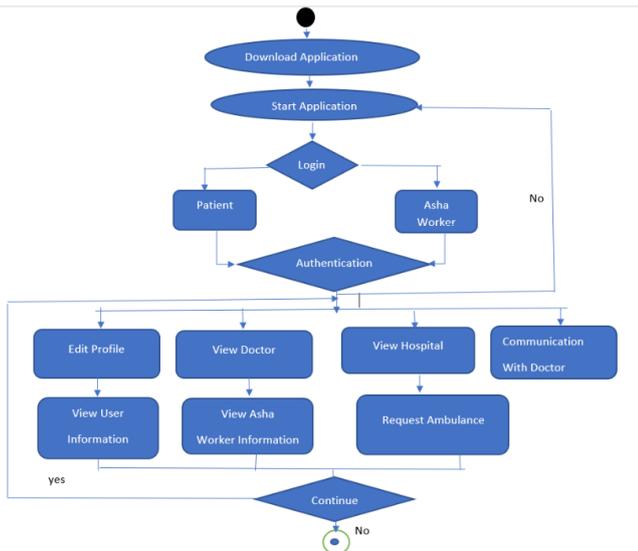
Fig.: Activity diagram of User and Asha worker

5. State diagram:
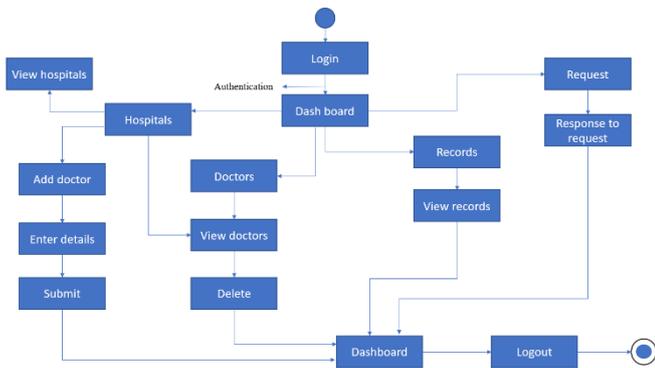

Fig.: State diagram of Admin
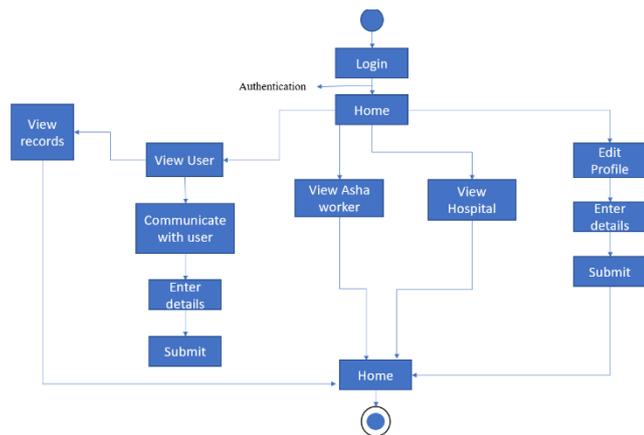


Fig.: State diagram of Doctor
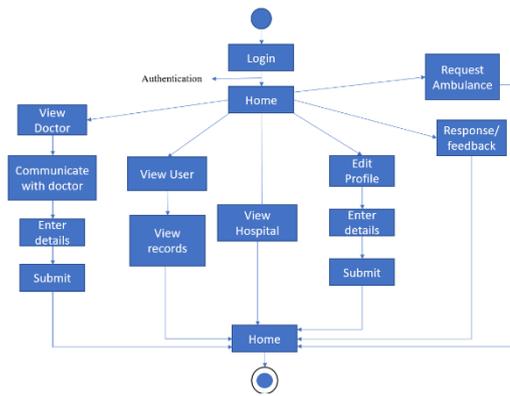

Fig.: State diagram of Asha worker
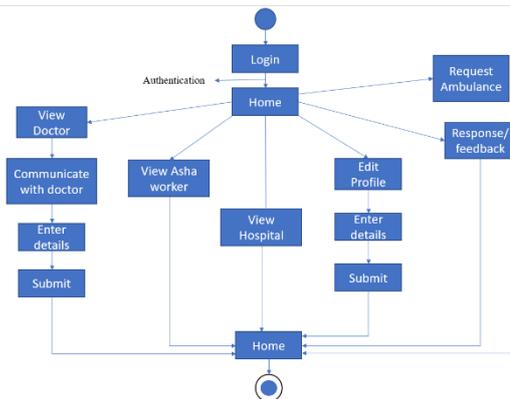
Fig.: State Diagram of User

CONCLUSIONS

Hence the main idea of our project is to provide healthcare facilities to villagers, better patient care and professional expertise healthcare at your home.

EXPECTED OUTCOME

The developed system should provide accurate facilities, body parameters and the patient can also communicate with the doctor through Asha worker and can get proper treatment.

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