

Smart Veterinary Management System

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Abstract – Nowadays, with the advancement in the world of technology, such as the internet, wireless network, communication technology, many business parties had incorporated these technologies in their daily business conduct, as they believe that the advancement of technology will surely bring good if they can appropriately be incorporated them into business conduct.

Online applications are playing an important role in our day-to-day life from online shopping to doctor booking which is saving time and helping ineffective management of resources. Life is becoming too busy to get medical appointments in person and to maintain a proper health care. As of now, there are no applications for online doctor appointments for veterinary systems. In this project java-based web application is designed, which as features for booking an appointment by checking the availability of a doctor and then select specific doctor specialization and a form is shown to the user who will fill the form based on animal condition and symptoms. Books are conformed by admin and updates are sent to the doctor regarding bookings along with details the user has filled. The project is designed with three modules admin, user, and doctor. Entire data is managed in a centralized database using the Mongo dB database.

The system was developed by open-source software in order to reduce the implementation and maintenance costs and to make the system sharable with other veterinary hospitals or research centers without additional costs.

Key Words: Veterinary Management system (VMS), Paws, Mongo DB, Web Application, Appointment.

1. INTRODUCTION

The introduction of digital systems in veterinary medicine, in compared to human medicine is an ongoing process due to the advantages offered. If anyone's is ill and wants to visit a doctor for check-up, he or she needs to visit the hospital and waits until the doctor is available. The patient also waits in a queue while getting appointment. If the doctor cancels the appointment for some emergency reasons then the patient is not able to know about the cancelation of the appointment unless or until he or she visits the hospital. [1] As the mobile communication technology is developing rapidly, therefore, one can use the mobile's applications to overcome such problems and inconvenience for the patients. [4]

The proposed work in this paper is a Veterinary Management System that uses an online platform that makes the task of making an appointment from the doctor easy and reliable for the users. Web based online doctor appointment application "Paws" contains three modules. [2]

One module is the application designed for the Pet Owners that contains a login screen. The Pet owner has to register himself/herself before logging in to the web application. [5] After logging in, the pet owner can select a veterinary doctor and can view the doctor's details. The pet owner has the option of selecting a doctor from the list of doctors and can view the doctor's ratings given by different pet owners. [3] The Pet Owner can request for an appointment on his/her preferred day/time. The selected day/time slot will be reserved and the pet owner will receive the notification of the successfully added appointment. In addition, the patient can contact to the doctor by making a call. [4]

The second module is the admin module that is designed on the website. The admin views all details of doctors and all appointments by the admin. [2] The admin can add doctor, view pet owner's (patient's) details and doctor's details and can view appointments also. All the doctors of the specific clinic are registered by the admin. [5]

The third module is the doctor module that is application designed which consist of a login screen. [2] The veterinary doctor has to register himself/herself before logging in to the web application. [5] The doctor's verification is done manually by the admin and then approved. After logging in, the veterinary doctor can schedule an appointment, change the status of the appointment and also view the feedback received by the clients through the ratings and comments listed at the home page of veterinary doctor's portal. [2]

2. OBJECTIVES

The main objective of Smart Veterinary Management System is to design and develop an online web-based application to counter and eliminate problems encountered in the current manual operation of the business.

Specifically, the project will aim for the following objectives:

- To establish and develop an online platform that will allow the customers to set an appointment with the veterinary.

- This online system allows the patients to set, view or cancel an appointment from the schedule.
- To provide an efficient way of storing, archiving and updating of records.
- All records of customers will be automated.
- The smart online veterinary management system will not only automate the records of the patients but also create a database of the past and present patients' record of the said clinic for easy and fast access of these records.
- The pet owner will be able to locate the veterinary clinics anytime anywhere.

3. LITERATURE SURVEYED

[1] A Systematic Review of the Literature Addressing Veterinary Care for Underserved Communities by Megan Kiely Mueller consist of content at says, currently, there is a care gap in veterinary medicine affecting low-income and underserved communities, resulting in decreased nonhuman-animal health and welfare. The use of low-price and community veterinary clinics in underserved populations is a strategy to improve companion-animal health through preventative care, spay/neuter, and other low-price care programs and services. Little research has documented the structure and effectiveness of such initiatives. This systematic review aimed to assess current published research pertaining to accessible health care, community-based veterinary medicine, and the use of community medicine in teaching programs.

[2] Veterinary information management system (VIMS) in the process of notification and management of animal diseases by Drago Medic talks about a prerequisite to the development of an efficient animal health, food safety and traceability management system in the animal food production chain is the implementation of an integrated veterinary informational management system (VIMS) capable for the capture, storage, analysis and retrieval of data and providing the opportunity for the cumulative gathering of the knowledge and capability for its competent interpretation.

[3] The O3-Vet project: A veterinary electronic patient record based on the web technology and the ADT-IHE actor for veterinary hospitals by Silvana Castano gave us information about A veterinary electronic patient record, compliant with the IT standards (HL7, DICOM and IHE), was developed at the School of Veterinary Medicine, University of Milan (Italy) in order to improve the veterinary hospital workflows, making the stored clinical data more homogenous and sharable, thereby increasing the integration with current and future software applications.

4. PROPOSED SYSTEM

4.1 BLOCK DIAGRAM

The block diagram represents the various elements of our project, the veterinary management system. The elements are:

- Database- all datasets are stored in database
- Pet Management- Pet owner's landing page consisting of all the data and functionalities related to the same are handled by this block.
- Review Management- this block deals with the reviews given to the service by the client.
- Doctor Management- this block mainly deals with approval of the appointments and status updating procedure.
- Appointment scheduling- this block deals with scheduling appointments and maintain the records of it.
- Owner Management- this block mainly deals with selecting and demanding of the services. This is mainly the client end of the project.
- Admin Management- it deals with the entire database of both doctors and pet owners and acts as a connecting link between them.

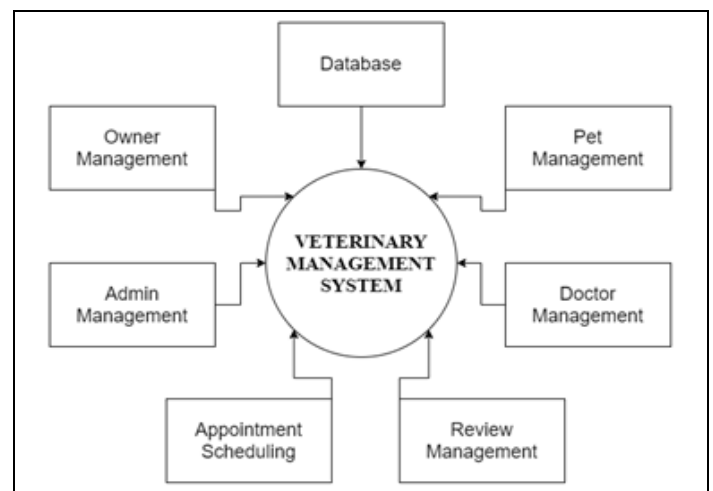


Fig -1: Block Diagram of the system

4.2 FLOW-CHART

- **Landing Page:** This is the first page which is shown to any user who comes to our website.
- **Portal:** The user the quick access any of our pages from this page
- **Login Page:** We have secure authentication to prevent unauthorized Access
- **Owner:**
 - Add Pet: The owner can Add Pet to his account with this feature
 - Schedule Appointment: The owner can Schedule Appointment with a doctor with a selected date and time

Add Review: The owner can leave a review for the Doctor after the Appointment

- **Doctor:**
View Appointments: The doctor can view all the appointments for that doctor
Manage Clinic: The doctor can manage details for the clinic
- **Admin:**
The admin has all the database entries visible

All the pages are connected with Database through backend.

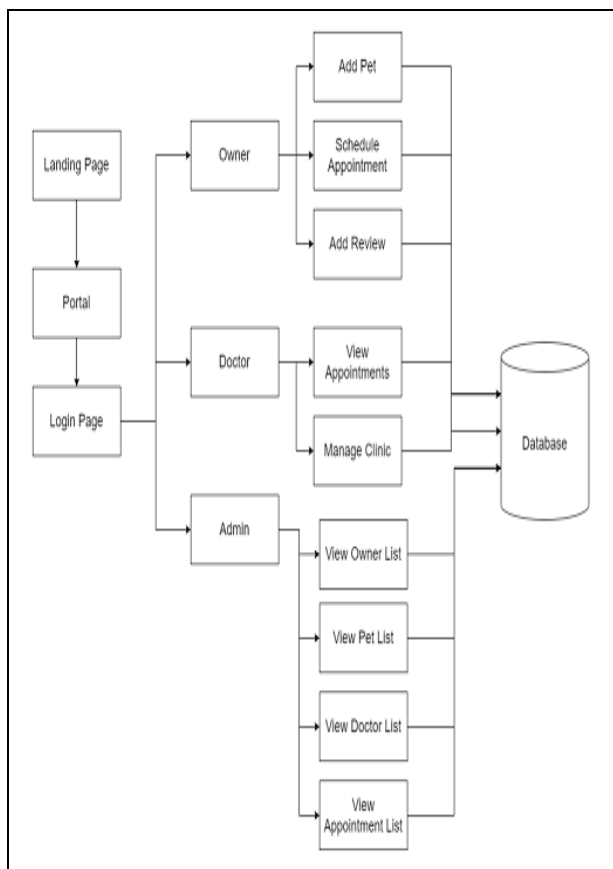


Fig -2: Flowchart of the system

4.3 UML DAIGRAM

This unified modelling language diagram is with the purpose of visually representing a system along with-it component modules that are: - 1) Owner 2) Doctor 3) Admin.

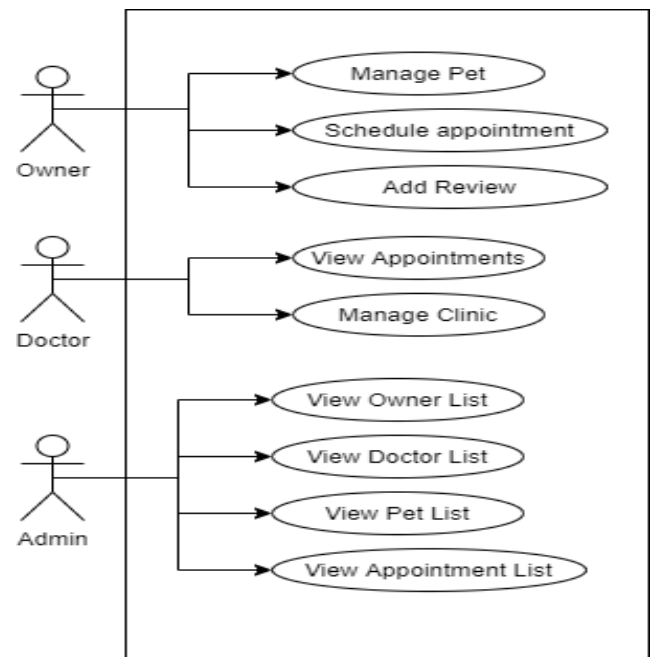


Fig -3: UML diagram

5. METHODOLOGY

5.1 MODULES:

In the proposed system in this paper, there are three modules – Pet owner, veterinary doctor and the admin. In this system the pet owners and the veterinary doctors are brought to one place which is handled by admin and the admin allows pet owners to register and search for the veterinary doctors basing on the location the list of the doctors will be shown and pet owners can book an appointment which will be confirmed by the admin. As everything is computerized it is done very fast which will same time. Following are the structured view of the three modules of the project: -

5.1.1 Pet Owner Portal

The pet owner needs to register and log in the web-based application. After logging in the pet owner can add as many numbers of pets as they want to their home page to maintain the records and individual profile of each pet (in case of multiple pets). For booking an appointment pet owner will click on the schedule appointment and then select the veterinary doctor from the list of doctors depending on the locality and reviews to the doctor.

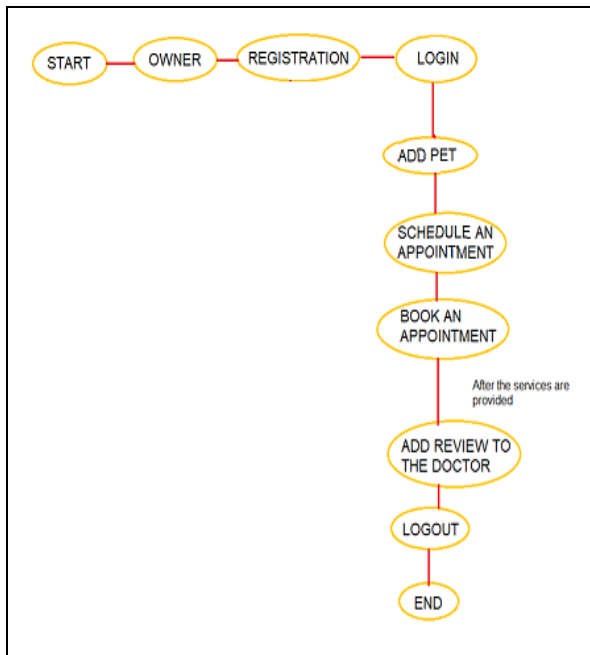


Fig -4: Pet Owner Portal

5.1.2 Veterinary Doctor Portal

The doctor needs to register by giving necessary details which will be manually checked by the admin along with location, timings, specializations, etc. After registration he/she has to log in to view different pet owner’s appointment and also the feedback provided to the him/her by their clients after the services.

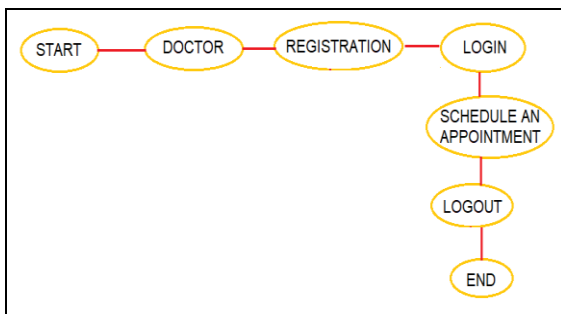


Fig -5: Veterinary Doctor Portal

5.1.3 Admin Portal

Admin can view both the registered veterinary doctors as well as the registered Pet owners. The admin can view doctor’s database, the pet owner’s database, the appointment scheduled database and the reviews or the feedback database.

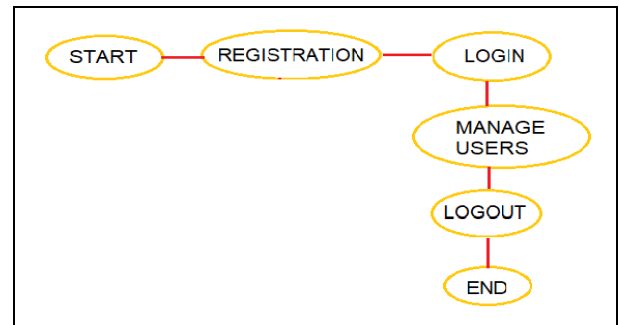


Fig -6: Admin Portal

5.2 HARDWARE REQUIREMENT

- Processor: Intel i3
- Hard Disk: 120GB
- RAM: 4GB RAM

5.3 SOFTWARE REQUIREMENT

- Node.js Version 7.0.14
- MongoDB Version 5.10.12
- React.js Version 17.0.1

6. CONCLUSIONS

This is a web-based application that overcomes the issue of managing and booking appointments according to pet owner’s choice and demands. Here the pet owners can select good doctors by viewing their details and reviews given by different pet owners. Hence the project offers an effective solution where users can view various booking slots available and select the preferred date and time. This system also allows the pet owner to cancel their bookings anytime. With the help of this web-based application the veterinary doctor can alert his/her own schedule. If used by hospital, hospitals can also easily manage their registration and appointment process and monitor the flow of patients to the veterinary doctor. With the use of this application the time can be saved to both veterinary doctors and the pet owners.

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BIOGRAPHIES



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