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CENTRALIZED HEALTHCARE MANAGEMENT SYSTEM

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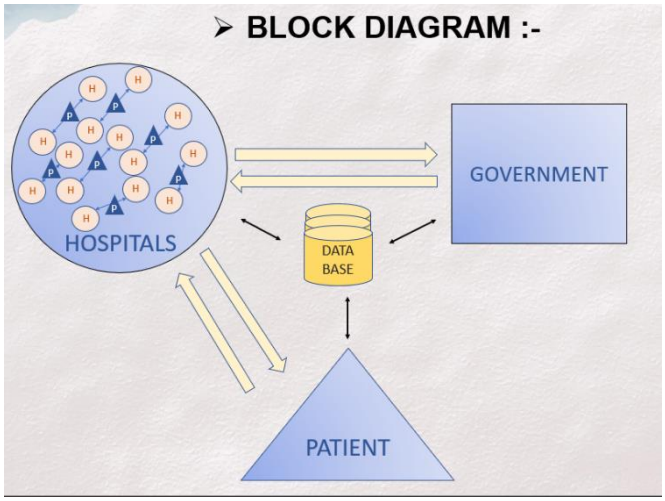
Abstract **-** The current process of recording patient health information when they visit new health centres or when their cases are transferred to different institutions is highly inefficient. It leads to duplication of efforts and a lack of access to complete patient records at the receiving institutions. Consequently, doctors are unable to accurately plan the most appropriate course of action for their patients due to the absence of essential information. To address this issue, a project is being proposed to develop a data model that enables a nation to store all patient records in a centralized electronic medical record. The primary objective of this project is to create a single, easily accessible database that simplifies the process of recording and retrieving patient information. By consolidating the data into a centralized system, the need for repetitive data entry can be eliminated. This streamlines the workflow and enhances productivity for healthcare professionals. Moreover, this centralized database allows for replication across different hospitals, enabling seamless transfer of patients between institutions. This eliminates the cumbersome reliance on physical copies of health records and ensures that all pertinent information is readily available to doctors, regardless of the location. Implementing such a data model would revolutionize healthcare delivery by ensuring comprehensive and accurate patient records. With easy access to complete medical histories, healthcare providers can make informed decisions and develop precise treatment plans. Additionally, the centralized electronic medical record system enhances collaboration and coordination among healthcare institutions, as they can seamlessly share patient information when necessary. This promotes a more efficient and patient-centric healthcare ecosystem, where individuals can receive continuous and uninterrupted care, regardless of where they seek medical attention. The development of a centralized electronic medical record system offers numerous benefits, including reduced duplication of efforts, improved access to patient information, enhanced planning and decision-making for doctors, and streamlined patient transfers between healthcare institutions. By leveraging the power of technology and data, this project aims to create a more efficient and effective healthcare system for the entire nation.

Keywords **— Centralized, Healthcare, Management System, Patient Portal.**

I. INTRODUCTION

The main objective of the project is to establish a centralized database for storing patient information. This centralized system would provide the government with access to hospital activities, allowing them to monitor and detect any potential malicious practices within the healthcare sector. Additionally, patients would have the convenience of accessing their health records through a web portal (James Ives, 2020). A key feature of the system would be the ability to transfer patient records from one hospital to another with the patient's consent. This empowers patients to determine the extent of access each hospital has to their records. By giving patients control over their information, the project ensures privacy and promotes patient autonomy. Furthermore, the utilization of big data monitoring and analysis would greatly assist doctors in predicting and diagnosing illnesses. The centralized database would accumulate a substantial dataset of patient information, enabling advanced analytics to identify patterns and trends. This valuable insight would support healthcare professionals in making more accurate diagnoses and providing appropriate treatments. The project aims to establish a centralized database for patient information, allowing the government to monitor hospital activities, granting patients access to their records, and enabling seamless record transfers between hospitals. With the integration of big data monitoring and analysis, the system has the potential to enhance diagnostic capabilities and improve patient outcomes by leveraging comprehensive patient data (Sabyasachi Dash, 2019).

II. METHODOLOGY



Block diagran

EXPLANTION

Here we have three major components Patients, Hospitals and Government. System is designed in such a way that each component can communicate and share data efficiently with security. As you can see in above block diagram there is one data centre in middle to which every component has access but this access is limited as per there requirement.

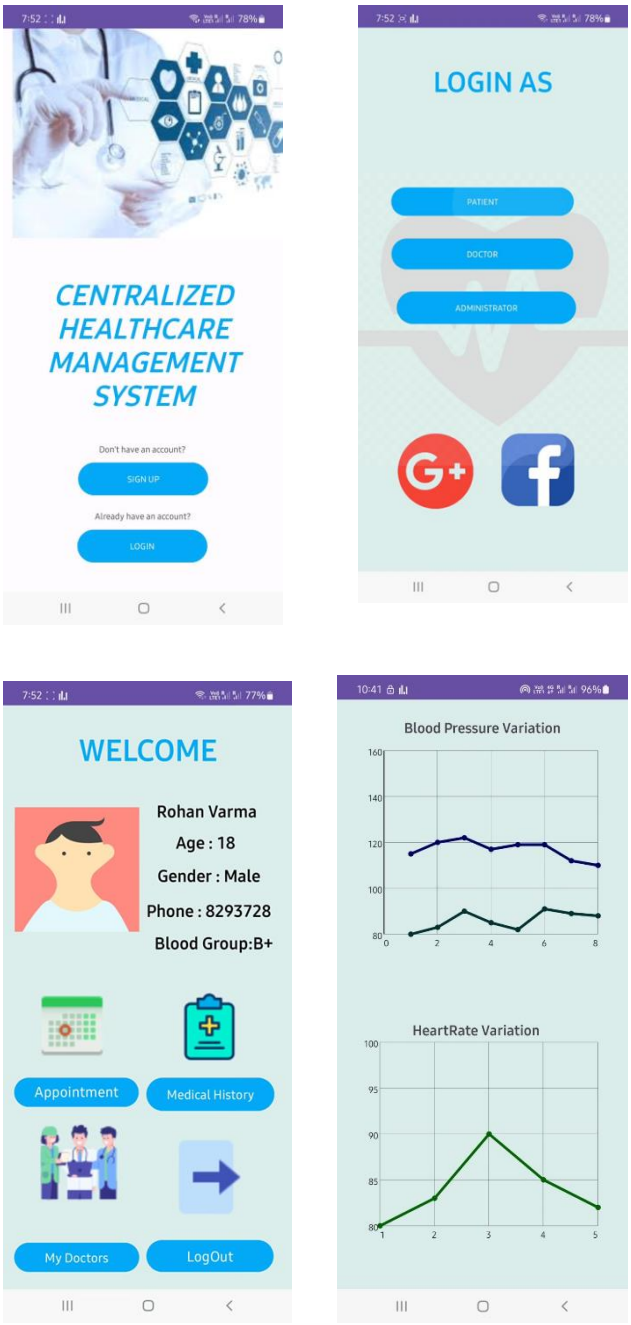
Further there are arrows in between three components which signifies transference of data and interaction between them.

Hospitals and Government have link in block diagram for maintaining regulation the hospitals will be providing annual report of their work so that no malicious activity is performed and government and provide guidelines which hospitals have to comply in order to be part of system.

Hospitals and patients also have link in block diagram which is obvious for sharing medical records and health reports from hospital to patient and also about available doctor and treatments which already kind of existing in market but the problem with existing solution is every hospital have their different proprietary software for handling this problem.

But in our system, it is all centralized similar software will be used by each hospital in system which make very easy for patient to shift from one hospital to another.

And if you in Hospital block in above diagram there are individual hospitals represented by ◯ have link between them with interrupt of ▲ as a patient which signifies shift of records of patient from one hospital to another with consent and permission of patient in case patient want to shift to another hospital for their treatment.



Screenshots of mobile application.

III. PROCEDURE

Realtime pothole detector consists of 6 blocks:

Data Gathering: It is one of the most crucial part of ML training model because outputs totally depend on input we provide while training the model. We have to be cautious while preparing data set for model training so that data is relevant and have ample of variations so that it is capable of detecting all real life scenarios it is going to encounter.

Annotations: Annotation is process in which images used for model training are given tags as per our requirements. Annotations can be given to whole image or particular part of images. In our case annotations are given to particular parts of images. A rectangular frame is drawn on pothole and tag is given. This process is repeated for all the images we are going to use for training our model.

Train ,Validation and Test: After giving all the annotations to images we start training the model using yolo V5. After training the model we do validation in which we can fine tune model to fit our requirements and make it more optimized. After all this when final modal is completely trained then we analyze its efficiency by running it on test set.

Implementation of trained model with live feed of camera: Now we take images from video frames of dashcam or camera mounted in front of vehicle run it through our trained model which gives us output whether it found any pothole or not.
And the side of pothole if found any.

Creating the database :After gathering all the data from live feed whether pothole is present or not and its size.
It is categorized into three categories namely severe, moderate and acceptable. In the database all three categories will be stored with their geo location so that immediate action could be taken for severe and moderate pothole as they could be detrimental to road safety
Forwarding report to concerned authority :The report of area which need urgent repairs concluded from our database will be forwarded to concerned authorities so that they can take required actions as soon as possible.

V. FUTURE SCOPE

One of the potential area of development is to improve the accuracy of the system in identifying the depth of pothole as it is one of the major factor for categorizing the pothole into severe, moderate and acceptable. Further it could be more standardized with partnering with government. A camera can be attached to government buses / vehicles which will be collecting data on every trip and keep updating data in database . It will form a feedback loop in which severe potholes will be detected as soon as possible.

IV. RESULTS AND DISCUSSIONS

- The system was able to recognise a patient with a valid email and password and display their medical records.
- The system was able to show trends and predictions based on their medical history.
- The system can help improve the overall experience of patients and when transferred from one hospital to another the load of medical paperwork would be reduced.
- The system may face some challenges in terms of privacy concerns and data security, which should be addressed through proper regulations and protocols.

VI. CONCLUSION

We will have a common electronic medical record for every nation since other nations can adopt the data model offered in this study. By using this paradigm, data duplication and will eliminate data redundancy and facilitate health information management, ensuring physician spend quality time on patients because they will always have access to their records, wherever they are. If we adopt this system misinformation in the medical report and falsification of medical documents will be precluded.

VII . ACKNOWLEDGMENT

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