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Building Rich Community with DHR System and using ML for Decision Making ensuring Enriched Health Facility and eradicating Health Myths

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1. Abstract

Mostly faced challenges in health sector of developing countries are not getting proper health care due to shortage of doctors, financial problems ,no digital record system,crisis of devices, lack of manpower, data connectivity between health service providers and patient identification.

Dividing whole country and recruiting health-workers , providing devices and through that building community in three stages along with web-based DHR (Digital Health Record) system will acknowledge and solve those problems .

DHR will maintain patient's medical history with all medical details and share information with other attached health-organizations ensuring data security , uses standard network protocol and implemented with PHP and MYSQL and required power generation using solar energy .Using Data Science to visualize situation of collective area and using ML , building prediction models with collected data from system, doctors could be warned about high risk diseases in community.

The purpose of this paper is to make aware of DHR system that could be implemented in the very core level connecting whole country.Maintaining health hierarchy SDG -13

System detecting regional diseases ,reducing medication error ,ensuring faster treatment will build rich community to make good decisions for improving health conditions.

2. Objective

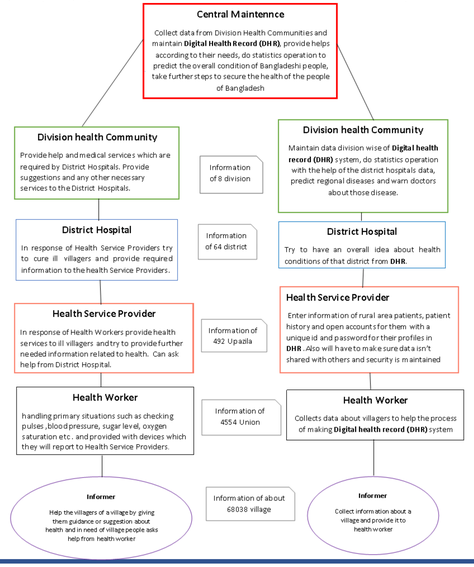
In Bangladesh 70% people live in village. They are facing such problems like:
1. There are insufficient doctors
2.No record system
3.medicine problem, cost problem
4.Trust issues, wrong diagnosis

The aim of the system is to create a layout and implement that to support the health care system. Objectives are:
1.Efficiency , cost reduction
2. Digitalization, enable security
3.fast diagnose, monthly check up, increase trust issues

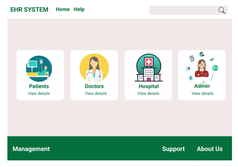
The uniqueness of the system are in its implementations.
1.Community build up
2.Power generation with solar energy
3.Use ML and building prediction model
4. Fast diagnosis
5.security ensure

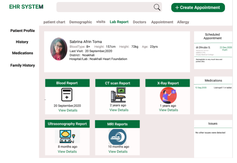
3. Proposed Solution

DHR system is for maintaining patient's medical history, diagnoses, medications, treatment plans, immunization dates,allergies, radiology images, laboratory test results and share information with other health care providers and organizations – like laboratories, specialists, emergency facilities, reducing medication error, complete, up-to-date, accurate information about patient history



4. Experimental Design

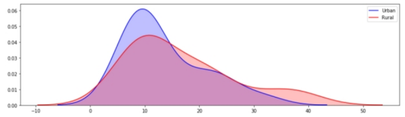




Infrastructure Design

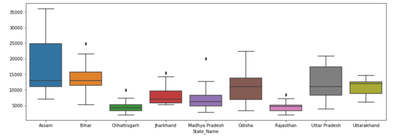
5. Results

Health services and guidance for leading a healthy life will be provided to all over the country, so we can say SDG goal "Good Health Well-being" will be fulfilled.
Health services is given properly all over the country so everyone will get good health services, so we can say SDG goal "Reducing Inequality" will be fulfilled.



This plot is showing the getting treatment rate of chronic illness people in urban and rural area. There is a significant gap between them with the help of our proposed system we can reduce the gap and ensure service to the people of all over our country.

This system is a new innovation to gather data and to provide health services to the needy people, so we can say "Industry, Innovation, and Infrastructure" will be fulfilled.

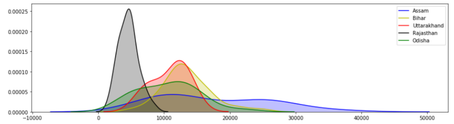


This boxplot is presenting the chronic illness rate in different states of India. Though this plot we get to know which area's people need services for chronic illness, so taking decision became easy and time saving.

Through this system many people of rural and urban will get job, corruption will be reduced and get health service at reasonable service fee or charge, so we can say SDG goal "Decent Work and Economic Growth" will be fulfilled.
We can say our proposed system will be successful to fulfill SDG goals 3, 8, 9 & 10.

6. Discussion

Our proposed system will able to provide health services in a secure way from rural to urban areas. Through this system the concept about the health of our country's people will be more prominent. So taking any decision to secure health issues of a certain area will be easy.



This plot is showing and comparing the chronic illness situation of different states of India. So taking decision about where need which types of emergency services easy to decide if we have information.

In further application we will apply some machine learning prediction algorithm to get notify about different districts peoples health condition of Bangladesh. When we will have data we will provide services according to them.
By making a strong health concerned community, people of our country will be get knowledge about a healthy lifestyle and some will get job. So overall the economic growth, good health services will be provided all over Bangladesh.

7. Conclusions

The proposed solution introduces to solve major health care challenges .By changing Patient records and histories from hardcopy to digital or electronic system connected to network , health care system could be upgraded and meet demands of current huge population and ensure data connectivity and data security among whole country.Furthermore , we believe that with data science IT administrators could group and cluster data according to certain regions . Implementing ML algorithm prediction is going to be much easier and doctors could take decisions in terms of treatment easily for a collective solution. Moreover, a large part of population is provided with job as health worker and informer .While implementation cost is higher , outputs will strengthen whole health sector eradicating laidbacks of our existing health system. In course of our study we considered functionalities and features of system , interoperability and implementation , cost analysis, maintenance and information system .

8. Future Work

This system is designed in such way that its implementation creates a vast impact on our health system like:
1. Initially targeting with the small areas , then collaboration with local hospitals
2.Personal Health record system so the demand will be increased
3.Prediction for high risk disease and have a prevention of non curable diseases\

9. References

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