

Cloud Based Live Disease Outbreak Predictive System for Government/Health Ministry

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Abstract— DOPS (Disease Outbreak Predictive System) will help the government to prevent outbreak/mass spreading of any disease. It will provide relevant disease count data, country-wise/state-wise/city-wise on run-time or live tracking basis. This data gathering process will be conducted at very beginning through Aadhaar/ PAN/ voter-ID etc of patient in hospitals so that health ministry or any authorized department can be informed about how one emerging disease & pre-exist disease is spreading itself and with the help of this critical information respective department can take necessary steps to prevent outbreak of it.

Keywords: Cloud Disease Predictive, Disease Forecast, Aadhaar Based Disease Tracking

I. INTRODUCTION

What if we have system by which strong omen of outbreak of any disease can be predicted so that necessary action plan can be prepared to deal with it. As we know our world has faced attacks of so many critical diseases like Plague, Cholera, Smallpox, Ebola Swine flu, Spanish flu, H1N1 and now Corona epidemic. These outbreaks not only hamper our normal life but economy too. So it is better to have forecast system which can tell us where & what kind of disease outbreak is about to happen? We have to integrate this system with our medical facilities like Hospitals, small clinics, laboratories on day to day basis & very rapidly so that databank can evolve itself very fast to help us in good manner. This system involves patient data & their disease data on run time/live basis & this data gathering process will be conducted at the time of visiting of patient to doctor, with the help of software application – “Disease Outbreak Predictive System”.

II. ONGOING SIMILAR SYSTEMS/PROCESSES & THEIR DRAWBACKS:

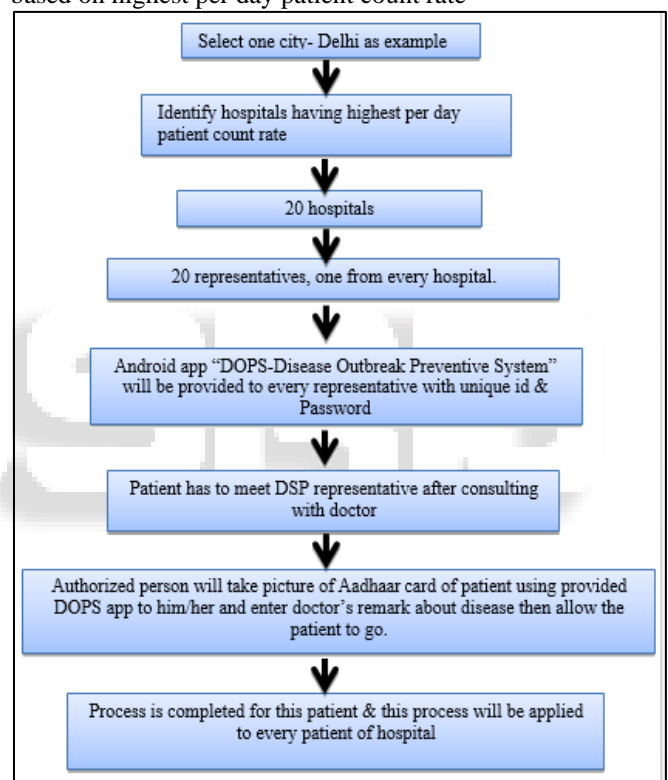
In a first look reader may feel this idea is similar to arogya-setu app, IDSP(integrated disease surveillance system) Or any similar system, which is already exist & which health ministry is collecting data using these tools but both, arogya-setu app & already exist system doesn't have run time analytics & other secure & data gathering feature so that health ministry get information about any upcoming outbreak of any disease.

Arogya-setu app data is not authentic because it is filled by User itself that may be wrong & scope of this is wider with different purposes.

IDSP: it is not activated all the time for every disease, and it is for epidemic prone diseases but will not helpful to figure out the emerging epidemic diseases.

III. PROCESS FLOW OF DOPS (DISEASE OUTBREAK PREDICTIVE SYSTEM):

This system can be implemented in whole country but for trail we will have a process flow For one important city like Delhi, as per goggle search result there are 172+ hospitals in Delhi so we will first identify 20 hospitals including government hospitals , selection of hospitals is completely based on highest per day patient count rate –



IV. APPLICATION AREA:

Implementation use case of this particular system is medical domain like Hospitals, Medical Research laboratories & Health related department belonging to particular city, state or country.

- It will predict new disease outbreak which is about to happen.
- It will help to declare red zone of high patient count rate of particular disease in that area.
- It will provide live disease data to health ministry or relevant health department.

V. DATA GATHERING PROCESS

DOPS data gathering process involves following things.

- Patient's Aadhaar Card - As per the information provided by the minister, against total population of

1.31 billion, the number of Aadhaars assigned were 1.17 billion, translating into 89.2 per cent penetration, so use of Aadhaar will play vital role & cover most of the population.

- Doctor's or DOPS data collector's Mobile Phone – Mobile phone is easily available with every one and no extra infrastructure is needed.
- Android/web application for DOPS
- Private server or Cloud like AWS , Azure – Private server is more secure but for initial trails, it can be executed by AWS or Azure or any other cloud space on rent basis.

Roles – DOPS data collecting representative (Doctor or any medical staff)

DOPS data monitoring representative (Authorized person of health ministry or relevant dept.)

Process time – “DOPS” will take only 2 min. if doctor itself is a

DOPS representative & if somebody else is representative then process will take 5 min aprx.

Scope – Only authorized persons/teams.

Data Type – 1st Phase->Patient information, disease

2nd Phase-> Disease symptoms, remarks

Monitoring Room in Health Ministry

Sample Data Visualization

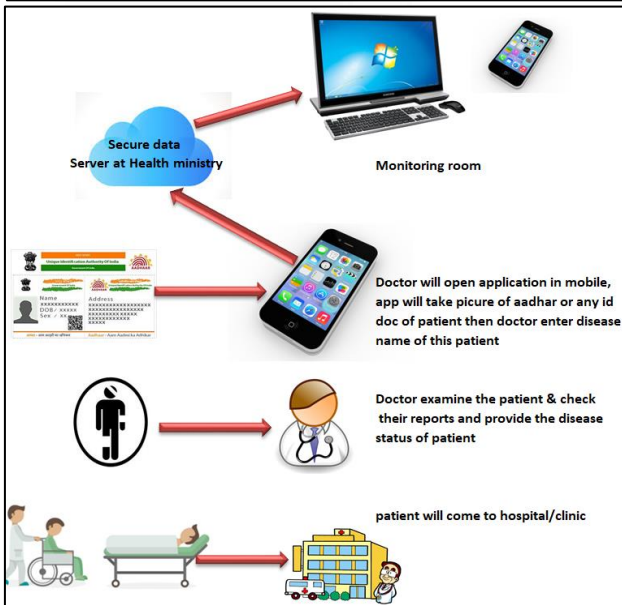
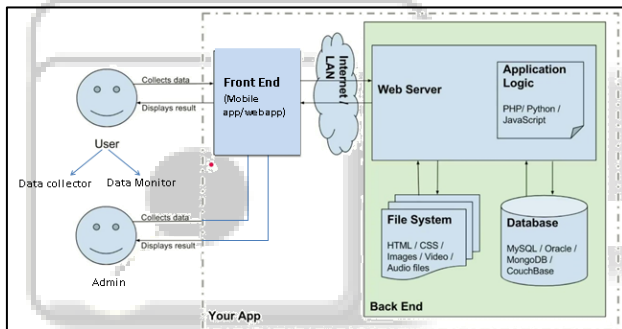
S.No.	Disease Name	Count	Country Name	Click Button
1	Hajja	####37	India	Enter
2	common flu	####25	India	Enter
3	Heart attack	####48	India	Enter
4	Pneumonia	####67	India	Enter
.	.	.	.	Enter
.	.	.	.	Enter
.	.	.	.	Enter

S.No.	Disease Name	Count	State Name	Click Button
1	common flu	##8	UK	Enter
2	common flu	##27	MP	Enter
3	common flu	##56	UP	Enter
4	common flu	##77	MH	Enter
5	common flu	#12	PANJAB	Enter
6	common flu	#89	DELHI	Enter
.	.	.	.	Enter
.	.	.	.	Enter

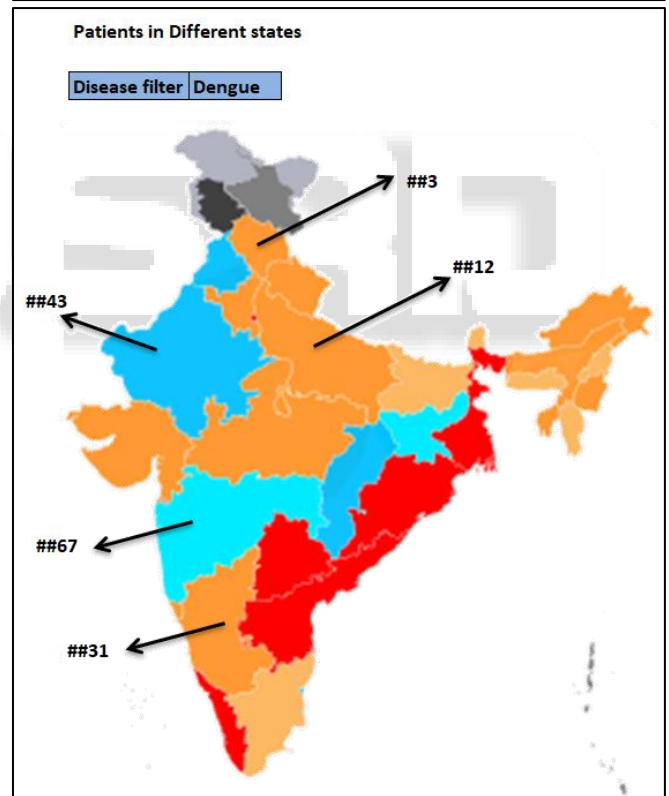
S.No.	Disease Name	Count	City Name	Click Button
1	common flu	#6	AGRA	Enter
2	common flu	#7	ALIGARH	Enter
3	common flu	#9	MATHURA	Enter
4	common flu	#1	JHANSI	Enter
5	common flu	#9	LALITPUR	Enter
6	common flu	#2	FIROZABAD	Enter
.	.	.	.	Enter
.	.	.	.	Enter

Scope can be further extended if needed

VI. SOFTWARE ARCHITECTURE:



This relevant data would be look like this



REFERENCES

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