



Theme : Social Impact Online Hackathon



Online Hackathon | Social Impact | Rocketium & Jharkhand State Government



by MishMash

17th Mar 2020, 4:00 pm, IST - 1st Apr 2020, 11:55 pm, IST • 107 registrations

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Problem Statement

The current CoVid outbreak has seen a heavy and quick deployment of case tracking platforms- including data visualizations from outbreaks in different countries and provinces. The testing mechanisms have been built through a network of testing laboratories that is able to track samples across the board. However, when it comes to tracking community cases and management of home-based quarantines, there is limited capacities in administrations down the line to monitor, enforce and use the same. Moreover, these capacities vary greatly across states leading to poorer containment efforts in states with weaker administrative bandwidths. Hackathon deliverables

The intent of this project is to develop 3 interlinked components

- A quarantine management app (QMA) for citizens at risk identified by the administration,
- An effort management app/web portal for administration (state, district, sub-district and medical officer levels) and
- A general citizen app for risk assessment, reporting of cases and crowdsourcing of data

Process Flow

1. Once a test result of a patient P1 comes as positive, the state health department creates a backtrace of his movement for the last 30 days.
2. Based on that back-trace, a list of at-risk places is created and the people at that location at that time interval is assessed based on research and data available.
3. Places such as parties can give a definitive list through basic inquiries but places such as cinema halls and train, travels are more difficult to locate.
4. Inquiries in the former case lead to a listing of people that might be at risk and some the subset of it is mandated to be home quarantined.
5. The administration (district and sub-district level) visits such persons and gets them to install the QMA against their phone numbers.

QMA (Quarantine Management)

1. Under QMA, the person is supposed to mark their home location and photo and send their GPS signals every X minutes.
2. The person is also supposed to upload a selfie (face detection/matching) 4 times in 6 hour time slots (barring 12am-6pm stretch).
3. In case of any symptoms of distress, he should be able to raise a signal.
4. The app will also take a temperature reading (normal/increased) and any additional (self-declared) information as may be needed.
5. In case of lack of GPS signal/delay in selfie upload as per time slot/moving out of quarantine zone, advisories etc SMS based and app-based notifications should go to the citizen under observation.
6. In case of close contact with another person even during quarantine, the person should be able to raise a request to the admin to get the said person also checked upon.
7. As this will be a non-coercive app, given privacy restrictions, the movement out of quarantine will be graded based on distance and time spent outside their homes.

EMA (Effort Management)

1. This application of the state government will be having the repository of tracked citizens and will sub allocate management roles to concerned districts and concerned CHC (usually 9-10 within districts) and PHC (usually 9-10 under 1 CHC).
2. This sub-allotment will be done based on GIS mapping of their administrative units that will be available as a GIS layer. Each PHC will have a set of medical officers that will get cases distributed among them based on phone numbers taken from their HR directory. The concerned Medical Officer (MO) will get a calendar of visits generated for him to visit QC (Quarantined Citizens) and fill a checklist of Home quarantine guidelines along with pictures.
3. The district and state dashboards should be able to see diagnostics on following and raise alerts for MOs for appropriate cases: a. CI which have not activated app. b. CI which have turned off GPS. c. CI which have not sent day's photos. d. CI which have raised alarm. e. CI which have gone outside a predetermined radius (2 kms). f. CI movement map in the last 14 days. g. CI visited by the administration (number of visits) h. CI medically tested and quarantined. i. Quality of quarantine for each CI in last 24, 72 and lifetime
4. The tracking should end automatically after the present N days. Each CIs tracks should be stored and once any suspected case becomes an actual case, the path history of said person should feed into the general app for backtracking.

CMA (Citizen Management)

1. This app will be used for advisories, sending reminders for handwashing, alerts when in dense zones (based on traffic APIs possibly).
2. For public places, it is expected that people will self-report their presence at such places and requests for a check-up.
3. The general app will thus feed into the raising of requests with the state government effort management app asking for testing.
4. The requests will enter into a risk assessment engine (based on a patient history questionnaire) and send directives to concerned health department units to conduct the test of the person and raise the report if positive or worthy of self-quarantine.
5. The maps of confirmed cases will be available as a heatmap in the city and any person can share their map history through Google API to generate possible link-ups with the confirmed cases and generate a risk score based on the same.

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