Infectious Disease Tracking System

Summary

This system that would track, predict at individual and macro level the disease at the scale India needs. The goal is to make responses precise, speedy, cost-efficient and scaled. This system then can be even donated/licensed to WHO or other countries.

Introduction

Tracking infectious diseases the traditional is inefficient. Following are special needs of India that need new thinking,

- With a large, highly mobile and dense population
- Multiple modes of communication
- Very informal ways of interactions
- Human nature of few to flaw rules in panic
- Not everyone at all the time can be careful

Traditional method involving questionaires and subjective questions, alone have following drawbacks,

- These cannot scale at very large numbers
- These are rather slow
- These can be error prone, we may miss out on some tracking
- These are mostly reactive

Proposal is to track movements of individuals and assign probabilities to each person. Once a person crosses the threshold, that person is under active tracking.

Proposal

There are three elements to the approach,

- Use cell-phone based tracking information
- Assign probabilities to people
- Use automatic video/sensor based measurement samples to improve probabilties

Other location tracking

e.g. cameras in public places
Travel systems

Cell-phone based tracking

Track movements of people
Correlate with others
Use the common location properties to
compute probabilities

Infection Probability System

Include macro conditions and models
Compute probabilities at scale
Inform people of their probability
Assign "under tracking" or
"self-quarantine" to people

→ Person Probability

e-Sample System

Video sample
Questionnaire
Video-chat
Sensors on phone

Aggregate

Forecast

Forecast at macro level

Hospital Logistics System

Compute beds, doctors,
medicines

Govt Decision Making

Lockdowns, isolation, laws