IIIT HYDERABAD
Confluence Industry-Academia Roundtable

Healthy (Pandemic/Covid safety) Smart Cities - Emerging technology solutions

2nd June 2021

As life after covid pandemic coming back to normalcy, governance and management of organisations/workplaces/schools/government needs to understand the best practices to be followed in managing the safety and wellbeing of the citizens. Under the purview of Living lab, IIIT HYD, a Round table discussion has been organised to bring in perspectives from government, technology partners, front line workers, academia and startups to geta better understanding of how cities and technology players are responding to pandemic and get valuable insights to address it by collaboratively. The objective is to identify and implement these ideas alive in the living lab. Th key focus of deliberations were1) When can we get back to work/school, and how to make it safe? 2) How do we make public transport risk-free 3) How do we keep public spaces and markets safe? How do we monitor and enforce? Considering the same, the current position paper objective is to summarise the key points and way forward action plan.

A. Context

The Covid, being the global pandemic has affected people irrespective of education, occupation, economic status etc. It also has put a lot of stress on the civic infrastructure. Significant areas with challenges need to be identified together wherein Government can make informed decisions based on the current scenario. Because of gaps and delayed response in medical aid, lots of causalities had happened and lack of resources has been identified as a crucial element for the same.

The issue got raised to next level because of mismanagement of resources, complacency and not learning from the past experiences. Unpredictability of pandemic also added to uncertainty of the situation. Due to wide outreach and real time updates, social media has shared every kind of news which has created hypersensitivity in masses and hence created chaos.

The kids also got affected as possibility of reopening schools is becoming vague because of unpredictability of the pandemic and low confidence levels in parents to send their kids. In addition to this, safety in public transport used mostly by people to commute to schools, offices and markets has also became one of the major concerns.

Further, non-availability of proper SOP guidelines as applicable to the present scenario and awareness of the same to the common people added to the problems.

B. Recommendations as way forward

Various concerns that need to be addressed for effective and safe reopening and functioning of schools, work, public spaces etc have been discussed and valuable recommendations have resulted from the discussion, as listed below.

- ***Real time updates with sensor network deployment***

  Technology can help with real time updates on the temperature, heath status, and vaccination status of everyone in schools on a live dashboard, and maintenance of the required aerosol levels across the campus.

  Network of Acoustic sensors can be deployed to detect cough and tested in the Living Lab. Proximity sensor/cameras can be used to find the behavior of the people and take care of the common places.

- ***Live Monitoring and Screening***

  To control the further spread of Covid-19 and preventive measure for third wave, monitoring for safe distancing and mask violation in public/or any place at various critical points can be installed.

  Existing infrastructure like the cameras installed in buses can be used to monitor safe distance or mask violations.

- ***Mandatory Periodic Screening***

  Contact tracing, periodic screening on a large scale and staggered timings can be implemented to mitigate the spread of Covid.

- ***SOP Guidelines and Training in place***

  Detailed SOPs for safe school/workplace for re-opening and safe canteen/mess operations should be updated and staff needs to be trained to conform to those SOPs to avoid further spread. Ownership & accountability to be given to the individuals by rewarding the truthful.

- ***Real Time Tracking***

  Real-time threat assessment with health details (vaccination details, temperature etc). plays a major role. Id cards with wi-fi chips can be used by people entering public spaces like schools, offices, markets, to do real-time tracking.

C. Proposed Solutions / Case Studies

Solutions have been designed for early detection and to lessen Covid-19 aerosols in the air. Standard SOPs are also being made ready to use for smooth reopening.

- ***Aerosol detection by Co2 sensors***

  Poor ventilation and the increased carbon dioxide levels in buildings show a correlation with the spread of covid-19. Good ventilation is essential in reducing the spread of covid-19. Hence CO2 sensors are installed in the rooms and when CO2 level goes beyond the standard level, windows are being opened to control the Aerosol levels in IIITH Campus.

- ***Standards SOPs for Schools***

  An organization named HealthSetGo has built detailed SOPs for safe school re-opening and safe canteen/mess operations along with FSSAI. These guidelines were launched in October of last year by the health ministry.

- ***Early Detection of Covid laden aerosols***

  The research on Covid-19 detection in air from the breath of a person in 5 seconds using spectrometry/ liquid crystal excitation is in progress and the devices developed will be in the market soon. Using such devices, one can check people entering a

common space for Covid-19 presence. Similar solution is already available in Singapore to detect covid from breath of a person.

- ***Mitigation of Covid Aerosols from air***
  Fogging of Sodium Hypochlorite diluted at right proportion can help to kill the virus in air.

- ***Touchless workplaces/lifts/public transport***
  Touchless workplaces/lifts/public transport like Amazon-Go Stores in the US can be implemented. It was also mentioned that that a startup in Bhopal. Fresh Rooms, creates smart and covid free public utilities and hospitality spaces.

D. Way Forward

- ***Recommendation to Key Government Stakeholders***
  Share and review report with key government stakeholders, IT industry associations (HYSEA, NASSCOM, SCSC and TiE) and CBRE/JLL, to plan on future actions and estimate costs for implementation. A follow-on round table on same topic will be planned in 4-6 months to review.

- ***Hosting Challenges based on identified themes.***
  Launch the challenges identified and get solutions deployed in the Living Lab to ensure right standards are in place by validating the products in the lab.

- ***Taking up Research Projects***
  Initiate more research projects in the Lab as per the ideas proposed in the paper. How to monitor/track safe spaces (cough/temperature/etc) can be taken up as one of the projects. Discussions with active participants to explore how to engage with them in the Living Lab, following the round table discussions.

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