Smart City Research Center @ IIIT Hyderabad

Collaboration between LAAAS CNRS & IIITH. With Gov support. Under the aegis of the Indo EU project & its IOT/OneM2M COE at IIITH

July 2019





Opportunity: Indian Smart City drive (100 cities)

The Mission focuses on 24 elements of transformation...



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z is any building or facility that uses automated processes to automatically control the by ation, air conditioning (HVAC systems), lighting, security and other systems.



IoT for smart buildings

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Integrated Security (24X7 monitoring, access controls, intrusion detection, surveillance)

Fire Safety (Fire/smoke detectors, extinguishing controllers and alarm systems)

Lighting control (light and motion sensor)

Energy Management (SCADA, solar rooftop, smart meters, smart grids)

Environmental Sensors (temperature/humidity/ air quality/pressure etc.)

Automation Systems (Building management systems)

Benefits

- air quality monitoring
- RoI generation
- just in time equipment replacement
- predictive maintenance
- energy saving

Lities with Smart B

- Belagavi
 - Itanagar
- Warangal
- Jabalpur Kakinada
- Thanjavur

Smart Pole

Smart Poles are a hybrid of street light, telecom and additional elements which enable IoT and next generation of Citizen Services



The Gap: AI & Technology in Smart **Pole & Smart Buildings**

On2M2M based Smart City standards?

Proposal: Smart City Research Lab for Tropics/India

Smart City Research Lab

- Research in all facets of Smart City . Specifically AI models & Data analytics
- Partner with Cites of Hyd & Bordeaux
- Smart campus- Live & wired setup
- Living Lab live data, pilots & prove

Converge IIITH & LAAS strengths

- ✤ AI, Embedded systems & Signals at IIITH
- ✤ LAAS livelab experiences applied to India
- Build on LAAS & French OneM2M & Standards

For Smart Cities at SCALE

- OneM2M for Smart Cities
 - Standards & Info models for adoption
 - ✤ Very large scale networks
- The relevant research areas
 - A cluster of centers and labs focused on Smart City technology
 - Buildings, automation, energy management, pollution, weather, traffic,..
 - Signals & Sensors, Signal processing, Communications, AI/ML, IOT, Protocols, GIS, Cog Sci, Theory & Algorithms

Define & pilot Smart City solutions & OneM2M++ at SCALE

Technologies for the 100 Indian Smart Cities







#3 Start City Standards: OneM2M for Indian Smart Cities



 Functional set indication
 Image: Set in

Develop standards for India Thru International support (Indo-EU project & City of Bordeaux)

• At IIITH, an IOT COE is in place with support from Indo-EU project

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 City of Bordeaux and City o fHyderabad are sister cities with active collaboration around city infra

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• Proposed Smart City Lab can build on this

#4 Public data sets

From a large campus (~2500 residents)

Building data

- Energy consumption
 Inflow. Distribution.
- Air conditioning data
- Solar power data
- Water data

Smart city data

- Street lights data
- Weather & Pollution
 - Thru network of micro monitoring stations
- Crowd movement

Clear models and metadata Very fine grained over a long period of time



#5 Startup(+research) Innovation

- CoCreate Smart City innovation with startups
- Validate Startup solutions

- Pilot Startup solutions
- Details TBD

Global partners

- Partner with Bordeaux Technowest incubator
 (That are focused on Smart cities)
- Joint Indo-French startup cohorts
 - Explore market plays and market pilots (French startups for India/Developing world. Indian startup for French/EU markets)
- Cross leverage technologies and experiences

#6 Real-world pilots at scale- Leverage Gov links Gov of Telangana, as a LIVE LAB | Bordeaux Metropol for insights

Government collaboration in place

- Sister cities: Bordeaux & Hyderabad
- Focus is on Water Sanitation, Art & Infra

- Research and Technology development can be connected to actve pilots in the City of Hyderabad and elsewhere in India
- Build on Bordeaux's experiences to replicate models and insights in Hyderabad



#7 Corporate Partners- Smart City players

To explore:

- Strategic advisor
 - Like PWC .. to help gide projects and priorities. And connect with Smart Cities in India
- Major MNC (like Microsoft)
 * to partner on large data analytics
- Tech MNC (like Seimens)
 \$ for technology
- Startups enablement

 thru corp support
- CSR

✤ Fund some of the initiatives

Details TBD

- Potential partners
 - ✤ PWC- Strategic Advisro
 - Paradign IT
 - St Gobain
 - Seimens
 - ***** ...





Next steps

Develop the Full plan

- Build out the Smart City lab concept
 - ✤ Details
 - ✤ Possible projects
 - ✤ Activities & Funidng plan
- Corp partners
 - St Gobain, Pernod Ricard.. Others?
 - ✤ PWC
- Onboard Government
 - * Local Telangana (Hyderabad) state very supportive
- Detailed concept & Budget proposal
- Explore funding sources
 - Indo EU project; CEFIPRA; AFD;
 - Sri City/Srini Raju; St Gobain; PWC/PRIF

Pilot: Pending full plan, start activities..

- MOU between LAAS & IIITH
- MOU between INSA-T and IIITH
- Research student exchange in Dec
- Pilot joint research projects
 - ✤ Based on discussions past two days
 - ✤ Aftab , Sachin & Vishal see possibilities
- July plan
 - ✤ Basic MOU between LAAS & IIITH
 - ✤ Develop this proposal deck
 - List of projects (1 year possibilities)
 - * 3 project detailed proposals (Aftab, Sachi & Vishal)
 - ✤ Initial discussions around funding sources...



Lets bring research & innovation to Smart Cities





Comments?

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