The Project for Smart Cities for Emerging Countries based on Sensing, Network and Big Data Analysis of Multimodal Regional Transportation System (M2Smart Project)

The M2Smart Project is a joint research project by India and Japan and it has been designed collaboratively by Japan International Cooperation Agency (JICA) and Japan Science and Technology Agency (JST) as a Japanese government program of "Science Technology Partnership for Sustainable Development (SATREPS)". Dr. Tsutomu Tsuboi (Nagoya Electric Works Co. Ltd., Japan) is the M2Smart SATREPS Project Leader. From the India side, Prof. Budaraju Srinivasa Murty (Director, IITH) is the Project Director since 2019 and Prof. U.B. Desai (Professor Emeritus of IITH and the founding Director of IITH) was the Project Director from 2017 to 2019 then continues to support this project as the Project Manager since 2019 and Prof. Bheemarjuna Reddy Tamma (Dept. of CSE, IITH) serves as the Co-Project Manager. From the Japan side, Dr. Tsuboi is the Project Manager and Prof. Atsushi Fukuda (College of Science and Technology, Nihon University) is the Co-Project Manager. The researchers from IIT Hyderabad, Nagoya Electric works Co. Ltd., Nihon University and Tokyo Institute of Technology (TIT) are jointly collaborating on this interdisciplinary project and formed 4 research groups, 1) Traffic Sensing, 2) Big Data Analysis, 3) Traffic Management, and 4) Smart City Policy.

3rd JCC in April 2019 at Nihon University

Introduction for the Project Team leaders and Co-leaders

Group 1 [Traffic Sensing] Leader: Prof. C Krishna Mohan (IITH), Co-leader: Dr. Satoshi Takahashi (Nagoya Electric Works)

2nd JCC in June 2018 at IITH

Group 2 [Big Data Analysis] Leader: Dr. Tetsuhiro Ishizaka (Nihon University), Co-leader: Dr. Maunendra Sankar Desarkar (IITH)

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Group 3 [Traffic Management] Leader: Dr. Digvijay S. Pawar (IITH), Co-leader: Dr. Tsutomu Tsuboi (Nagoya Electric Works)

Group 4 [Smart City Policy] Leader: Prof. Atsushi Fukuda (Nihon University), Co-leader: Prof. Soumya Jana (IITH)

Historical Background and Overall Project Goals

The aim of the M2Smart Project is to establish a reliable and common approach for grasping the traffic situation in cities by building a system that effectively utilizes mobile devices, traffic sensing, big-data analysis and network technologies. This project has started in 2017 and since then, we have conducted several research meetings in India and Japan, workshops in Hyderabad and Ahmedabad cities and presented M2Smart ongoing research results at several conferences in India, Japan and also internationally. More than 20 IITH PhD and MTech students are also enrolled as the Research Assistants at IITH for working on various research aspects of this project.

The team has set up a testbed system inside the IITH campus and on a 30KM stretch of NH-65 near the IITH campus. This field testbed system comprises several key components of the traffic management system such as real-time traffic flow monitoring cameras, speed detection safety system, traffic signal lights, remote environment gas sensing, etc.

At the 5th Joint Coordination Committee (JCC) held in January 2021 in online mode due to pandemic situation, the researchers reported the progress of the joint research for the traffic monitoring and the traffic flow analysis by utilizing deep learning AI recognition architecture, driving behavior sensing, environment gas monitoring, etc. Traffic monitoring has been implemented not only in Hyderabad but also in Ahmedabad by collaboration with Ahmedabad city authorities where the project team had installed traffic monitoring cameras at several junctions and main roads. Due to COVID-19, the onsite visits have been postponed, however, the M2Smart project team is able to compare traffic conditions of these two cities by gathering feeds from on-site cameras remotely.

Lastly, we thank all the people who dedicatedly involved in the M2Smart Project. This is an example of true collaboration between India and Japan!

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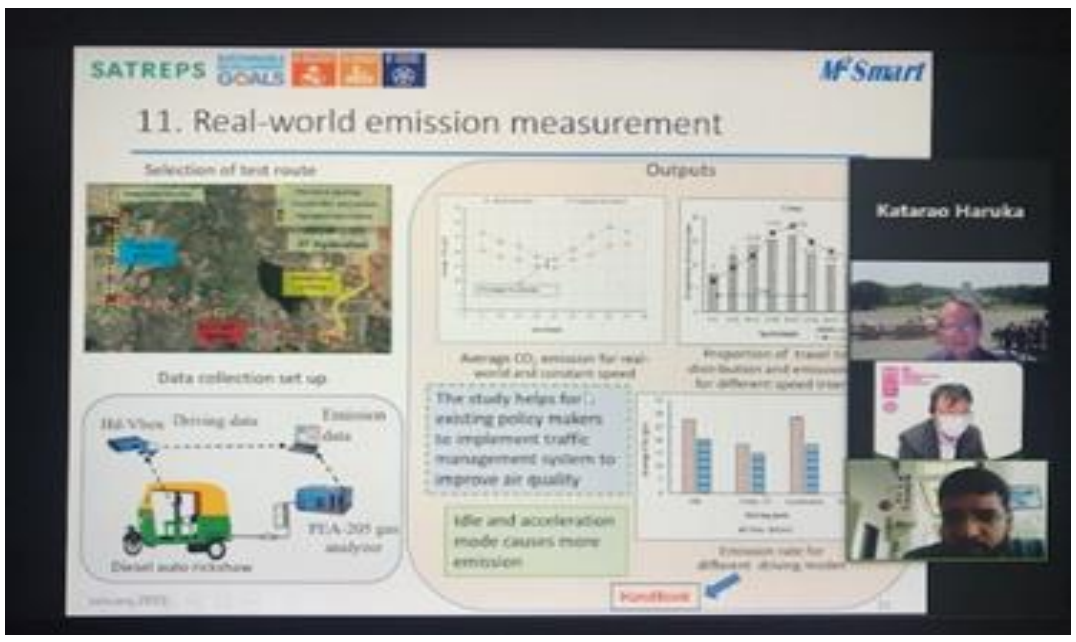

5th Online JCC Meeting in January 2021

IITH Testbed E-Rikishaws were delivered in February 2019

Gallery of the M2Smart Project

Ahmedabad City Electric Board welcomes JICA, JST and IITH (SATREPS Project Team)in July 2018

M2Smart Lab Opening at IITH in May 2019

Ms. Haruka Katarao (M2Smart Resident Coordinator, JICA, Japan) (L)
Prof. Bheemarjuna Reddy Tamma (M2Smart Co-Project Manager, Dept. of CSE, IIT Hyderabad, India) (R)

For Starters, Travel Patterns Of Hyd, Ahmedabad To Be Identified

New app to help you pick best multi-mode ride-hailing options

PreetiBiswas@timesgroup.com

Hyderabad: Need to choose between a cab, bus or auto-rickshaw while visiting an Indian city? Well, that could soon be possible at the click of a button, courtesy a unique mobile application being developed by a team of experts at the Indian Institute of Technology, Hyderabad (IIT-H).

For starters, the 'M2 project' team has identified two cities — Hyderabad and Ahmedabad — to study travelling patterns of commuters. Over a period of three years, it will monitor and compare traffic conditions in the two cities in real-time. The identified sites: a 30-km stretch between Sangareddy and BHEL junction (Hyderabad) and the Paldi junction (Ahmedabad).

travel time, fare, eco-friendly travel options etc," said Prof Bheemarjuna Reddy Tamma, associate professor, depart-

tric Works, Japan. The project also aims at reducing carbon emission by vehicles.

"Mobile apps that exist now

reduced," Prof Tamma added.

The team plans to use green leaf' icons on the smartphone app to indicate the carbon

SMART WAY TO DRIVE AROUND TOWN

Project duration: 3 years

Financial aid ₹30 crore project approved by Japan International Cooperation Agency

No. of researchers working on the project: 14 professors and 20 research scholars from IIT-Hyderabad, along with 21 professors and 13 researches from Nihon University and Nagoya Electric Works, Japan

Identified stretches: 30-km stretch between Sangareddy and BHEL junction (Hyderabad) and the Paldi junction (Ahmedabad)

PURPOSE OF PROJECT

- Develop smartphone app to educate commuters on different modes of transport
- Develop 'handbook' to guide countries in promoting low carbon urban transportation

BENEFITS TO COMMUTERS

- Will be able to get range of transport options such as taxi, metro, buses etc. from one point to the other; existing apps only provide data of one transport mode at a time

Times of India, 30 May 2019