

GOVERNMENT OF INDIA
MINISTRY OF HOUSING AND URBAN AFFAIRS
RAJYA SABHA
UNSTARRED QUESTION NO. 1190
TO BE ANSWERED ON FEBRUARY 13, 2023

TRAFFIC AND TRANSPORT SOFTWARE SOLUTIONS

NO. 1190. SMT. JEBI MATHER HISHAM:

Will the Minister of *Housing and Urban Affairs* be pleased to state:

- (a) whether Government has resolved to bring in World-class traffic and transport software solutions to the country, if so, the details regarding the project cost and the solution providers thereof;
- (b) by when the projects will be made functional;
- (c) the methods and measures adopted to opt for the software solutions provider, the details thereof; and
- (d) the manner in which traffic and transport software solutions will support the country in future-proofing its road systems using local talent and the latest international research, the details thereof?

ANSWER
THE MINISTER OF STATE IN THE
MINISTRY OF HOUSING AND URBAN AFFAIRS
(SHRI KAUSHAL KISHORE)

(a) to (d) : Government of India, launched the Smart Cities Mission (SCM) on 25 June 2015. 100 Smart Cities were selected through 4 rounds of competition from January 2016 to June 2018. Integrated Command and Control Centers (ICCCs) have been operationalized in all the 100 Smart Cities. ICCCs act as brain and nervous system of cities by playing an important role in ensuring better efficiency and efficacy in areas like traffic management, solid waste management, water distribution management, among others.

Out of 100 ICCCs, more than 75 are working in traffic management and transportation issues *vis.* Adaptive Traffic Control System (ATCS), Integrated Traffic Management System (ITMS), Red Light Violation Detection (RLVD), Automatic Number Plate Recognition System (ANPR), etc. A few Smart Cities which have adopted traffic management systems as part of their ICCCs, *inter alia*, include Ahmadabad, Surat, Chandigarh, Kanpur, Ludhiana, Nashik, Saharanpur, Ujjain, and Vishakhapatnam.

For assisting traffic and transport management, 92 Smart Cities have installed 63,782 cameras, 62 Cities have covered 2,000 Junctions through Adaptive Traffic Control System, 67 Cities have covered 7,100 Junctions with Automatic Number Plate Recognition (ANPR) and more than 7,200 cameras have been installed by 62 cities for monitoring red light violations. The City-wise list of traffic and transportation solutions implemented in various ICCCs of the Smart Cities is given at [Annexure-I](#).

The Smart City SPVs engage Master System Integrators (MSIs) through bidding process who are responsible for integration and implementation of various services including software solutions for traffic and transportation management, as part of ICCCs.

Further, to encourage local talents/startups, Ministry of Housing and Urban Affairs (MoHUA) launched the 'Transport 4 All Challenge (T4All)' on 15th April 2021. The Challenge aims to bring together cities, citizen groups and startups to develop solutions that improve public transport to better serve the needs of all citizens. The solutions will make public transport—formal as well as informal— safe, convenient and affordable for all.

Annexure-I in reply to parts (a) to (d) of Rajya Sabha Unstarred Question No. 1190 for answer on 13.02.2023 regarding Traffic and transport software solutions asked Smt. Jebi Mather Hisham, Hon'ble MP.

| S.No | Smart City | Traffic and Transportation solution implemented |
|------|--------------------|---|
| 1. | Agartala | Implementation of a city surveillance system using CCTV cameras |
| | | Monitoring of Traffic using Adaptive Traffic Control System (ATMS) |
| | | Monitoring of Traffic using Red Light Violation Detection (RLVD) and Automatic Number Plate Recognition System (ANPR) |
| 2. | Agra | Monitoring of Traffic using Adaptive Traffic Control Systems (ATCS) and Intelligent Traffic Management System (ITMS) |
| | | Implementation of Rapid Emergency Response system using CCTV cameras and Panic buttons |
| | | Traffic Congestion Management during Monsoon |
| 3. | Ahmadabad | Monitoring of BRTS & AMTS buses using Intelligent Traffic Management System (ITMS) |
| | | Implementation of an E-challan system using Red Light Violation Detector (RLVD) and Automatic Number Plate Recognition (ANPR) systems |
| | | Monitoring of Traffic using Adaptive Traffic Control Systems (ATCS) |
| 4. | Aizawl | Enhancing safety and security of citizen using Facial Recognition system and Video Analytics |
| 5. | Ajmer | Monitoring of Traffic using CCTV cameras |
| 6. | Aligarh | Enhancing safety and security of citizens using Video Management System |
| | | Automatic incident creation and Challan generation using Intelligent Traffic Management System |
| | | Management of traffic and creation of green corridor using Public Announcement System |
| 7. | Amravati | Enhancing safety and security in the city using CCTV surveillance cameras |
| 8. | Amritsar | Effectively managing the traffic using the Surveillance cameras |
| 9. | Aurangabad | Monitoring traffic and enhancing road safety using video analytics |
| | | Implementation of an E-challan system using Red Light Violation Detector (RLVD) and Automatic Number Plate Recognition (ANPR) systems |
| 10. | Bareilly | Intelligent Traffic management system for monitoring the traffic movement |
| | | Enhancing safety and security of citizens using CCTV Surveillance system |
| 11. | Belagavi | Monitoring public transport using GPS enabled city buses |
| | | Monitoring of Traffic using Adaptive Traffic Control Systems (ATCS) and ITMS |
| 12. | Bengaluru | Monitoring of Traffic using Automatic Number Plate Recognition System (ANPR) and Body Worn Cameras (BWC) |
| 13. | Bhagalpur | Effective traffic management via e-challan services using Red Light Violation Detector and Automatic Number Plate Recognition systems |
| | | Monitoring of Green Corridors using Intelligent Traffic Management System |
| 14. | Bhopal | Monitoring of parking using smart parking sensors integrated with ICCC |
| | | Monitoring of Public bike sharing system using ICCC |
| 15. | Bhubaneswar | Implementation of a rapid emergency response system to resolve emergency situations centrally |
| | | Enhancing safety and security of citizen using CCTV surveillance |
| | | Traffic monitoring and management in the city through ITMS |

| S.No | Smart City | Traffic and Transportation solution implemented |
|------|--------------------|--|
| 16. | Biharsharif | Enhancing safety and security of citizen using CCTV surveillance |
| 17. | Bilaspur | Surveillance of the city using CCTV Cameras |
| | | Monitoring of Traffic using Adaptive Traffic Control Systems (ATCS) and ITMS |
| | | Traffic management through Over speed Detection Systems (ODS) and Automatic Number Plate Recognition System (ANPR) |
| | | Implementation of E-challan system in the city |
| 18. | Chandigarh | Implementation of Traffic enforcement system through Red Light Violation Detection (RLVD), Over speed Detection Systems (ODS) and Automatic Number Plate Recognition System (ANPR) |
| | | Traffic Signal and Green Corridor Management using Adaptive Traffic Control System (ATCS) |
| | | Monitoring traffic and enhancing road safety using video analytics |
| | | Enhancing safety and security of citizens using CCTV surveillance and Video Analytics |
| 19. | Chennai | CCTV cameras to enhance safety and security of the citizens. |
| 20. | Coimbatore | Dissemination of important information to the citizen through Digital Board |
| 21. | Dahod | Crowd monitoring using CCTV cameras to enhance safety and security of the citizens. |
| | | Monitoring of Traffic using Adaptive Traffic Control Systems (ATCS) and Red Light Violation Detection System (RLVD) |
| | | Crowd Monitoring through CCTV, Identification of incident based hotspots using GIS |
| | | Enhancing public awareness in the city using Public Announcement and Digital Display systems |
| 22. | Davangere | Monitoring of Traffic using Intelligent Traffic Management System (ITMS) |
| | | Monitoring encroachments on footpath through CCTV surveillance. |
| | | Vehicle tracking and management system of public buses in the city. |
| | | Monitoring of Public bike sharing system in the city |
| | | Tracking of vehicular speed in the city and monitoring traffic violations and provision of e challan |
| | | Provision of displayed smart parking in the city |
| | | Traffic management through Red Light Violation Detection (RLVD), Overspeed Detection Systems (ODS) and Automatic Number Plate Recognition System (ANPR), Traffic Signal and Green Corridor Management using Adaptive Traffic Control System (ATCS) |
| 23. | Dehradun | Monitoring public transport system using GPS enabled city buses (Vehicle Tracking and Management System) |
| | | Managing traffic signals using Adaptive Traffic Control System (ATCS) |
| | | Enhancing public awareness through Visual Message Display system, PIS and PAS |
| | | Monitoring of Public bike sharing system in the city |
| | | Monitoring of City buses using Smart city bus management system |
| | | Crowd monitoring in the city through constant surveillance and implementation of decision support system with coordination with Police department |
| | | Implementation of Rapid Emergency Response system through surveillance and panic buttons |
| 24. | Dharamsala | Enhancing safety and security of citizens using CCTV surveillance |
| 25. | Diu | Monitoring of the Public Bicycle sharing system using GPS technology |
| 26. | Erode | Efficient energy utilization through monitoring of Smart Streetlights |

| S.No | Smart City | Traffic and Transportation solution implemented |
|------|----------------------|--|
| 27. | Faridabad | Monitoring of Traffic using Adaptive Traffic Control system |
| | | Integrated Video Management System for crowd detection and analysis |
| | | Enhancing safety and security of citizens using CCTV surveillance |
| 28. | Gandhi Nagar | Tracking and Scheduling of public buses using GPS for Automated vehicle Location System |
| | | Crowd Monitoring through CCTV |
| | | Implementation of Rapid Emergency Response system using CCTV cameras and Panic buttons |
| 29. | Gangtok | Enhancing safety and security of citizens using CCTV surveillance |
| | | Enhancing Public Awareness using Smart poles |
| | | Implementation of Rapid response system using Emergency call box |
| | | Enhancing Public Awareness using Variable Message Display system |
| 30. | Warangal | Enhancing safety and security of citizens using CCTV surveillance |
| 31. | Guwahati | Managing traffic signal and conditions using Adaptive Traffic Control System (ATCS) |
| | | Traffic enforcement using camera based Traffic Violation Detection System: Automatic challan generation through ANPR for Red Light Violation, No Helmet Detection, Triple Riding Detection, No Seat Belt Detection, Driver on Call Detection and Speed Violation |
| | | Enhancing safety and security of citizens using CCTV surveillance |
| | | |
| 32. | Gwalior | Monitoring of Public Bike Sharing System using ICCC |
| | | Monitoring of Smart City Bus service using GPS enabled public buses |
| | | Monitoring of Parking using Sensor based system |
| | | Monitoring of Traffic using Adaptive Traffic Control Systems (ATCS) and Intelligent Traffic Management System(ITMS), Monitoring of Traffic using Red Light Violation Detection (RLVD), Overspeed Detection Systems (ODS) and Automatic Number Plate Recognition System (ANPR), Traffic Signal and Green Corridor Management using Adaptive Traffic Control System (ATCS), Monitoring of Traffic using Automatic Number Plate Recognition System (ANPR) |
| | | Enhancing city surveillance by establishing Smart Police Kiosk |
| | | Implementation of Emergency response system for Police, SDC and Municipal services using mobile application |
| | | Implementation of a rapid emergency response system using Emergency Call Box |
| | | |
| 33 | Hubli Dharwad | Enhancing safety and security using CCTV surveillance cameras |
| 34 | Imphal | Managing traffic signal and reducing congestion using Adaptive Traffic Control System (ATCS) |
| | | Intelligent Traffic management system for monitoring the traffic movement for road safety and traffic discipline |
| | | Enhancing safety and security using CCTV surveillance cameras |
| | | The SOS Emergency Call Box services for emergency assistance |
| | | Monitoring black spots in the city using Fixed box cameras |
| | | Enhancing safety and security of citizen using Facial Recognition system and Video Analytics |
| | | Implementation of Rapid Emergency Response system using CCTV cameras and Panic buttons |
| | | Crowd Monitoring through CCTV |
| 35 | Indore | Implementation of GPS enabled public buses for real time monitoring and management of the public transport system |
| | | Implementation of Automated Fare Collection system |

| S.No | Smart City | Traffic and Transportation solution implemented |
|------|------------------------|--|
| | | Implementation of a rapid emergency response system using Emergency Call Box |
| | | Implementation of emergency response system using GPS enabled emergency vehicles |
| 36 | Itanagar | Monitoring of Traffic using Automatic Number Plate Recognition System (ANPR) |
| | | Enhancing safety and security of citizens using Emergency call boxes |
| | | Implementation of Public Information System using Variable Message Display |
| | | Monitoring black spots in the city using Fixed box cameras |
| | | Implementation of Emergency response system for Police, SDC and Municipal services using mobile application |
| | | Implementation of Rapid Emergency Response system using CCTV cameras and Panic buttons |
| 37 | Jabalpur | Monitoring of public transport using GPS enabled public buses |
| | | Enhancing safety and security of citizens using CCTV surveillance |
| 38 | Jaipur | Enhancing Safety and Security of citizens using CCTV cameras |
| | | Monitoring of parking using smart parking system using sensors |
| 39 | Jalandhar | Enhancing safety and security of citizens using CCTV surveillance |
| | | Crowd Monitoring through CCTV |
| | | Enhancing safety and security of citizen using Facial Recognition system and Video Analytics |
| 40 | Jhansi | Enhancing safety and security in the city using CCTV surveillance cameras, Emergency Call Box and Video Analytics |
| | | Monitoring of Traffic using Intelligent Traffic Management System which includes Adaptive Traffic Control System (ATMS), Automatic Number Plate Recognition System (ANPR), Red Light Violation Detection System (RLVD), Speed Violation Detection System (SVD) and E-challan |
| | | Implementation of Rapid Emergency Response system |
| 41 | Kalyan Dombivli | Monitoring Traffic using Red Light Violation detection (RLVD) and Intelligent Traffic Management System (ITMS) |
| | | Enhancing Safety and Security of citizens using surveillance cameras |
| 42 | Kanpur | Monitoring of Traffic using Adaptive Traffic Control Systems (ATCS) and Intelligent Traffic Management System(ITMS) |
| | | Enhancing Safety and Security of citizens using CCTV surveillance cameras |
| | | Implementation of a rapid emergency response system using Emergency Call Box |
| 43 | Karimnagar | Enhancing Safety and Security of citizens using CCTV surveillance cameras |
| 44 | Karnal | Implementation of Rapid Emergency Response system using CCTV cameras and Panic buttons, Enhancing safety and security of citizen using Facial Recognition system and Video Analytics. |
| | | CCTV cameras are using to monitor the crowds at the of COVID 19 emergency and other farmer agitation |
| | | Crime prevention and monitoring through CCTV Camera and criminal tracking through artificial intelligence systems |
| | | Monitoring of Traffic Conditions using Intelligent Traffic Management System (ITMS) |
| 45 | Kavaratti | Enhancing Safety and Security of citizens using CCTV surveillance cameras |
| | | Vehicle live tracking system using GPS enabled vessels |
| | | Implementation of Rapid Emergency Response system using CCTV |

| S.No | Smart City | Traffic and Transportation solution implemented |
|------|--------------------|---|
| | | cameras and Panic buttons CCTV cameras installed at main jetty (west) and Eastern jetty has helped in monitoring public movement and surveillance. |
| | | Implementation of electric mobility in the city through E-autos Six number battery operated vehicles (Car) have been procure for promotion of electric mobility. |
| 46 | Kochi | Monitoring of Traffic using Red Light Violation Detection (RLVD), and Automatic Number Plate Recognition System (ANPR) - RLVD & ANPR application. |
| | | Monitoring of Traffic using Adaptive Traffic Control Systems (ATCS) and Intelligent Traffic Management System(ITMS). |
| 47. | Kohima | Real time traffic condition monitoring and management using CCTV cameras |
| | | Efficient traffic management using real time signal monitoring, re-routing and reducing traffic congestions |
| | | Enhancing Safety and Security of citizens using CCTV surveillance cameras |
| | | Identification of civic issues using CCTV cameras |
| 48. | Kota | Monitoring of Criminal activities and Traffic in the city using CCTV and Automatic Number Plate Recognition (ANPR) cameras |
| 49. | Lucknow | Monitoring of Traffic using Adaptive Traffic Control Systems (ATCS) and Intelligent Traffic Management System (ITMS), Monitoring of Traffic using Red Light Violation Detection (RLVD), Overspeed Detection Systems (ODS) and Automatic Number Plate Recognition System (ANPR). |
| | | Buses data display on Geo view with details like Active / Inactive status, Vehicle details like Number, GPS number. |
| | | Adaptive Traffic Control System or ATCS |
| | | Traffic Enforcement system |
| 50. | Ludhiana | Effective Traffic surveillance deploying Automatic Number Plate Recognition System (APNR) and RLVD (Red Light Violation Detection) systems |
| | | Enhancing Safety and Security of citizens using surveillance cameras |
| 51. | Mangaluru | Enhancing safety and security of citizens using Smart Poles and Video Management System |
| | | Monitoring public transport using GPS enabled city buses |
| 52. | Moradabad | Enhancing Safety and Security of citizens using CCTV surveillance cameras |
| | | Identification of theft vehicles using Automated Number plate recognition system |
| | | Implementation of identifying the parking violators using advanced technology |
| 53. | Muzaffarpur | Enhancing Safety and Security of citizens using CCTV surveillance cameras |
| 54. | Nagpur | Implementation of E-challan system |
| | | Investigation of criminal cases using CCTV surveillance system |
| | | Use SIM based tracking project for to monitor Positive patient is rooming outside his home. |
| | | Enhancing safety and security of citizen using Facial Recognition system and Video Analytics, Crowd Monitoring through CCTV, Monitoring black spots in the city using Fixed box cameras |
| | | The Video Analytics and Facial Recognition System is available to track Criminals and violations |
| | | Monitoring water logging in the city using CCTV cameras |
| | | Investigation of criminal cases using CCTV surveillance system |

| S.No | Smart City | Traffic and Transportation solution implemented |
|------|-------------------------|--|
| | | Monitoring of Traffic using Adaptive Traffic Control Systems (ATCS) City Safety & Security |
| 56. | Nashik | Monitoring of Traffic using Adaptive Traffic Control Systems (ATCS) and Intelligent Traffic Management System(ITMS) |
| 57. | New Town Kolkata | A system for enhancing safety and security of citizens |
| 58. | Pasighat | Enhancing safety and security of citizens using CCTV surveillance Implementation of Rapid emergency response using Emergency call box Monitoring traffic using Adaptive Traffic Control System and Red Light Violation Detection Monitoring black spots in the city using Fixed box cameras |
| 59. | Patna | Enhancing the safety and security of citizen through CCTV Cameras |
| 60. | Panaji | Monitoring of Traffic using Adaptive Traffic Control Systems (ATCS) and Intelligent Traffic Management System(ITMS) Monitoring of Traffic using Red Light Violation Detection (RLVD), Overspeed Detection Systems (ODS), Automatic Number Plate Recognition System (ANPR) and speed sensors Implementation of an E-challan system |
| 61. | Raipur | Monitoring of Traffic and green corridor management using Adaptive Traffic Control Systems (ATCS) and Intelligent Traffic Management System(ITMS) Reducing traffic violations using RLVD and SVD Tracing stolen vehicles using Automatic Number Plate Recognition (ANPR) system Implementation of an E-challan system |
| 62. | Rajkot | Penalizing for spitting in public using E-challan system City surveillance and monitoring of traffic using CCTV cameras Monitoring of Traffic using Adaptive Traffic Control Systems (ATCS) and Intelligent Traffic Management System(ITMS) Monitoring of Traffic violations using Red Light Violation Detection (RLVD), Overspeed Detection Systems (ODS) and Automatic Number Plate Recognition System (ANPR) Monitoring of public transport using GPS enabled public buses Implementation of an E-challan system |
| 63. | Ranchi | Monitoring traffic using Adaptive Traffic Control System (ATCS) Monitoring of Traffic violations using Red Light Violation Detection (RLVD), Overspeed Detection Systems (ODS) and Automatic Number Plate Recognition System (ANPR) Monitoring of Public bike sharing system using ICCC Implementation of E-challan system |
| 64. | Rourkela | Monitoring of Traffic using Adaptive Traffic Control Systems (ATCS) and Intelligent Traffic Management System(ITMS) |
| 65. | Sagar | Monitoring of Traffic using Intelligent Traffic Management System (ITMS) |
| 66. | Saharanpur | Monitoring of Traffic using Adaptive Traffic Control Systems (ATCS) and Intelligent Traffic Management System(ITMS) |
| 67. | Shillong | City Surveillance and Monitoring using CCTV camera |
| 68. | Shivamogga | Monitoring the traffic at entry and exit of city using Automatic Number Plate Recognition (ANPR) System Monitoring traffic violations using Speed Sensors Monitoring traffic violations using E-challan data Monitoring traffic using Adaptive Traffic Control System (ATCS) Monitoring of public transport using GPS enabled public buses |

| S.No | Smart City | Traffic and Transportation solution implemented |
|------|-----------------------|--|
| | | Enhancing safety and security of citizens using surveillance cameras |
| | | Enhancing city surveillance by establishing Smart Police Kiosk |
| | | Monitoring of citizen grievances through ICCC |
| | | Intelligent Traffic Management System(ITMS) |
| | | Monitoring of Traffic using Red Light Violation Detection (RLVD), Overspeed Detection Systems (ODS) |
| | | Implementation of an E-challan system |
| | | Monitoring of Public bike sharing system using ICCC |
| | | Monitoring traffic violations using Speed Sensors |
| | | Display of travel details on public buses using Public Information System |
| 69. | Silvassa | Intelligent Transport System (ITS): CCTV installed E-buses for efficient monitoring of passengers |
| | | Live tracking system of Buses: Silvassa Smart City E-Buses have an Intelligent Transport system |
| 70. | Surat | Enhancing safety and security using CCTV surveillance cameras |
| | | Management of Public buses using Intelligent Transit Management System (ITMS) |
| 71. | Thane | Monitoring of public transport using GPS enabled public buses |
| | | Crowd Monitoring through CCTV surveillance, which generates alerts at ICCC Dashboard |
| 72. | Thoothukudi | Implementation of electric mobility in the city through E-autos |
| 73. | Tumakuru | Monitoring of Traffic using Intelligent Traffic Management System (ITMS) |
| | | Implementation of a city surveillance system using CCTV cameras |
| | | Monitoring of Traffic using Adaptive Traffic Control System (ATMS) |
| 74. | Udaipur | City surveillance and monitoring of traffic using CCTV cameras |
| 75. | Ujjain | Monitoring traffic using Integrated Traffic Management System |
| 76. | Vadodara | Monitoring of operation of city buses using Intelligent Transit Management System |
| 77. | Varanasi | Monitoring of Traffic using Intelligent Traffic Management System (ITMS) |
| 78. | Vellore | Enhancing safety and security of citizen using Facial Recognition system and Video Analytics |
| | | MCCC- Mobile Command and Control Centre |
| 79. | Vishakhapatnam | Identification of suspicious and stolen vehicles using Automatic Number Plate Recognition System |
| | | Monitoring traffic violations using Automatic Number Plate Recognition system and Red Light Violation Detection System |
| | | Monitoring smart streetlights using automated alerts |

(Source Smart City SPVs, as on 27 January, 2023)