Smart City Solution – Key Factor for Development

Smart city, being an emerging technology concept, has several interpretations depending on the solution benefits perceived by various consultants, technology writers, OEMs and other experts. Therefore, to simplify the concept of Smart City, we will consider some key areas that are regarded as an integral part of this project by majority of the authorities on this subject.

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Smart City Project is an initiative that leverages on the Information Communication Technology (ICT) to bring together people, government, various Agencies such as healthcare, utility service provider and mobility for an efficient and productive engagement that enhances the quality of life ensures sustainable economic growth and optimised management of resources.

It is important to identify the objectives to be achieved with the implementation of a smart city project. These objectives should be relevant to the city and its people. Broadly a smart city will include following areas:

- Information and Communications Technology (ICT) wired and wireless network infrastructure for high bandwidth communication, Datacentre with redundancy for high availability and cameras and sensors.
- Command and Control Centre for Real time information from various services and agencies for actionable intelligence and timely response to any situation.
- Secured City – Public Safety and Security through city surveillance system with video analytics, Police help line (dial 100) integrated with Geographic Information Systems (GIS) for identifying caller location and prompt response in case of emergency.
- Smart Transportation – Real time monitored transportation infrastructure comprising of Road, Rail, ferry and air for efficient operation. Intelligent Traffic Management System(ITMS) for the city
- Utility management – Monitoring of power, water supply, waste disposal for optimised utilization meeting environment protection laws and guidelines by relevant authorities.
- E governance Services through secured and easy access to the citizens using smart phones and other devices
- Health care facilities such as usage of home sensors to collect data from patient in real time that gets transferred to Central patient Monitoring System for analysis and appropriate treatment and also prompt action in case of emergency by health care service providers.
- And many more..

In a conventional city infrastructure the above areas operate independently in silos having dedicated data centre, communication network, Command and control centre and so on leading to increased investment in ICT assets.

In the case of Smart City, a well-planned ICT infrastructure having shared resources such as wired and wireless communication network and Data centre that supports the identified areas of applications for the city with defined deliverable goal will be significantly cost effective to set up and manage. Furthermore such an infrastructure can be easily upgraded or scaled up to meet growing service demands of the city.

The other advantage of a smart city is the integration of several services that offers seamless access and efficient utilization to the administrators and citizens. For example in the area of mobility an intelligent transport infrastructure of Buses, ferry and Railways will allow a traveller to check out instantly on the smart phone the various travel options for commuting from one destination to

another with details for interconnections between mode of transport, time duration, fare and the nearest transport location to commence the journey based on the location of the person identified from his smart phone. The traveller having decided on the appropriate mode of travel for the journey, will be able to purchase the e ticket that is downloaded to his smartphone after making electronic payment from his bank account All this without queueing up at the ticketing window.

When the traveller presents the smartphones with the e tickets near an access control reader that uses near field communication technology (NFC), the e ticket details are read by the access control reader that causes the turnstile to open allowing access to the railway platform for boarding a train. Similarly the same smartphone with the e ticket can be used on a bus / ferry for the journey.

Sensor- enabled devices are crucial component of a Smart City solution for collecting data from various sources such as water supply, air for detecting concentration of polluting gases, waste disposal, electric supply and several other areas and uploading them through wired / wireless network for processing and analysis that provides valuable input for monitoring and quality improvement by agencies such as water, electricity, gas and Meteorological department

Implementing and executing a Smart City project demands core competency in ICT infrastructure as well as in Physical Security System (PSS) such as video surveillance, access control and sensor based devices. A Master Systems Integrator having domain knowledge and expertise in multiple technology products and solutions that includes ICT, PSS sensors meets this requirement and plays an important role in successful implementation of the Smart City Project.

A Master Systems Integrator (MSI) is qualified to design the solution for implementing the Smart City Project and will be responsible for sourcing the technology for each area such as City Surveillance, smart energy meters, and Air Pollution sensors that will be integrated and operated from a Command and Control Centre. The MSI selected for implementing the Smart City Project could be the Systems Integrator for some areas and appoint and monitor other Systems Integrators for the remaining areas. However the entire responsibility for delivering the project will be with the MSI.

Allied Digital is a recognised Master Systems Integrator for ICT and Physical Safety and Security systems having successfully commissioned several such projects across the country. Allied Digital is presently executing the Pune City Surveillance Project that spread across 500 Sq Km area where around 1400 IP Cameras will be installed. The system also includes Automatic Number Plate Recognition System (ANPR) for recording vehicle number plate and Video Analytics for detecting, alerting and recording traffic violations such as wrong lane driving, No Entry violations. Recorded Video clips of traffic accidents can be used as evidence during investigation.

The infrastructure for the video surveillance in Pune is scalable and can be shared for deploying the Smart City Project. For instance the network devices (switches) at various junctions in the city can be used for integration with the air quality detection sensors that will record the concentration level of gases such as Carbon Monoxide and Sulphur Dioxide at the location that causes health hazard. These sensors will provide real time data on air pollution across the city that can be analysed and used for warning and for adopting appropriate air pollution control measures. Similarly other sensors that monitor temperature, Humidity, and traffic Volume can be connected to the junction network devices for acquiring real time data from the site.

The acquired data from various agencies in the city will be used for Big data analysis that yields valuable information for making informed decision by the relevant authority. This will enormously benefit the Citizens with improved quality of life and efficient administration.

Prime Minister Narendra Modi's directive for setting up 100 Smart Cities in India is a step in the right direction that will accelerate the development of cities leveraging on the resource optimisation and efficient operation of various agencies delivered by this technology. Smart City projects will certainly form a crucial foundation for economic development of the country and its early adoption will accelerate this process.