

System Development Case Study



AEM's Bluetooth enabled challan printer & license reader helps Police department improve traffic discipline.

AEM is the leading provider of indigenously designed & built technology solutions in India. We have addressed the most challenging real-time communication & collaboration needs of defense and industrial market customers: securely, cost effectively.

The Solution Provider and System Integrator

The **Science and Technology Park** is an institute set up jointly by Department of Science and Technology, Ministry of Science and Technology, Govt. of India and University of Pune in the year 1988. The promotion of high-tech entrepreneurship based on indigenous knowledge is one of its prime objectives.

The Scitech Park has developed an m-Governance solution under the incubation program to deliver "Traffic Violators' Solution". The organization acted as an interface to bring complete cohesion between the end customer (Pune Traffic Police), the researchers at AEM and the Pune-based software solution developers to work for mutual benefits and deliver a comprehensive localized solution for the cops and citizens of Pune.

The Client

Pune city police is the law enforcement agency with jurisdiction over Pune and Pimpri-Chinchwad cities in Maharashtra. The city police is a division of Maharashtra Police. It is widely believed that Pune police was established during the 1818 police re-organization but city-policing history goes well before that. The Traffic Branch deals with road and traffic safety.

The Challenge

The Pune Traffic police has planned to embrace technology in improving the effectiveness on the Roads and inculcate traffic discipline. The main hurdle faced by the traffic police in taking action against traffic violators is the unavailability of past violations by them. This leads to a lack of citizen trust in the legitimacy of recording the traffic violations.

Through the use of technology, the cops plan to record traffic offences on the spot. They also plan to produce the entire history of an offender's past offences and get complete information regarding his driving pattern at the time of the offence, so as to compute in real-time, the nature and magnitude of punishment, fine, etc.

The solution was designed around the usage of Internet and Mobile Phone services, through which, the suspect / target vehicle information could be transmitted to the data base providing the entire history on the screen of a hand held device by control authority personnel. However, printing of a traffic ticket, reading of Smart-Card based driving licenses as well as receiving the fine amount from the offenders through cash-less payment instruments was still a challenge.

The Solution

SCRYBE acts as a critical aid in the holistic implementation and institutionalization of the mobile phone based traffic application. Based on the powerful NXP 2388 ARM 7 microcontroller architecture, SCRYBE has undergone extensive research and development at the facility of AEM labs to evolve into a robust, world-class technology tool for mobile ticketing and challan requirements.

The device is a Bluetooth enabled wireless Portable Thermal Printer, designed for compatibility with standard mobile platforms such as Blackberry, Android, Win-CE, Symbian etc.

This compact appliance has the facility to read Smart Card based driving licenses and Vehicle Registration Certificates (RC), and wirelessly transmit this information to the screen of traffic policeman's mobile phone. This empowers the law enforcers with accurate information regarding the offender and the vehicle, enabling timely and relevant enforcement of law.

In-built Magnetic card reader enables deployment of payment applications using all kinds of payment instruments such as credit cards and debit cards.

The product's ease of usage and versatility enabled its seamless integration with the entire "trafficop" application. The integration was three fold:

The Technology

- NXP 2388 ARM microcontroller architecture, 32 bit
- Bluetooth 2.0
- USB 2.0 (device mode)
- UART 9600 Baud
- Encryption: AEM customized AES encryption
- BlackBerry MDS
- Smart Card: ISO 7816 (EMV level 1 Certified), SCOSTA

The Benefits

Consumer-End Integration

- Real-time generation of receipts and traffic challan.
- Deployment of E-Governance applications through smart card reading facility (Driving License, Vehicle Registration Certificates).
- Deployment of payment applications through MSR

Solution Integration

- Bluetooth interface enabled communication with mobile phones
- Rechargeable Battery enabled day-long uninterrupted functioning on the roads.
- Encrypted wireless data transfer enhanced information security.

User Integration

- Convenient transportation with a belt attachable pouch.
- Operational efficiency
- User friendliness

The overall benefits of using SCRYBE towards m-governance include:

- On line reconciliation of fine collected.
- Improved inter-departmental collaboration.
- Availability of Online Real time reports of offense.
- Enhanced support for identification of stolen vehicles.
- Improved fine collection through immediate challan printing on-the- spot.
- Ease of identifying repeated offenders



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