
Final Presentation: Team 17

ES Project: Safety and Security in Cities

Overview

Team Leader

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Subsystems

- Public Transport System
- Surveillance System
- Natural Disaster Management System
- Terrorism Management System
- Emergency Response System

Surveillance subsystem

Objectives

- Introduction of technology into the public transport system helps passenger travel with an ease.
 - The final call would be on the necessity of smart solutions for public transport.
 - This system covers the aspects regarding to Intelligent public transport for smart cities such as Bus Rapid Transport , smart ticketing , smart GPS based buses and bus stops , automatic fare collection.
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Surveillance subsystem

Inputs

- Police Report
- Feedback from Evaluation Team
- Location of devices

Outputs

- The video footage of the cameras which is sent to the data analysis team
 - Information gathered by the patrolling team.
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Surveillance subsystem

Challenges

- Hacking of the cameras
 - Power supply
 - Installation of cameras
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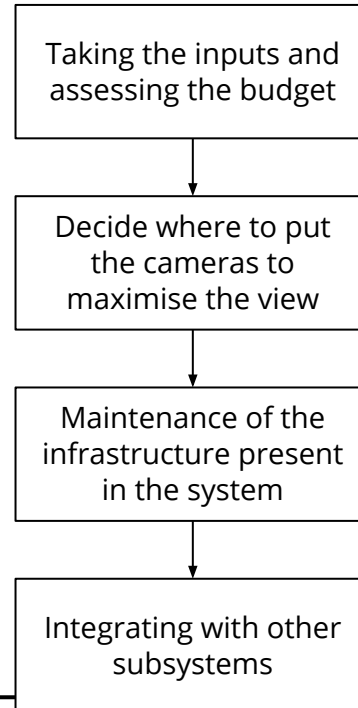
Surveillance subsystem

Solutions

- Securing the internet network and password protecting the IP cameras to avoid hacking.
 - Updating the cameras with latest firmware possible.
 - Solution to the installation of IP cameras is not really feasible. We can rely on the patrolling team in such areas.
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Surveillance subsystem

Flow Chart



Public Transport System

Objectives

- Introduction of technology into the public transport system helps passenger to travel with ease.
 - On the end there would be necessity of Smart public Transport for smart cities and the basic solutions a public transport requires.
 - This subsystem will be covering the aspects regarding to Intelligent public Transport for smart cities such as Bus Rapid Transport , smart Ticketing , smart GPS based buses and bus stops and automatic fare collection.
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Public Transport System

Inputs

- Strategic planning needs precise , extensive and prompt data collection with real-time observation.
- Data should be collected via varied hardware devices that lay the base of further Information and Technical Services functions.

Outputs

- People love to feel special. Personalized information will make passengers of public transport feel as if they are being taken care of.
 - Technology will enable transit agencies easily.
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Public Transport System

Challenges

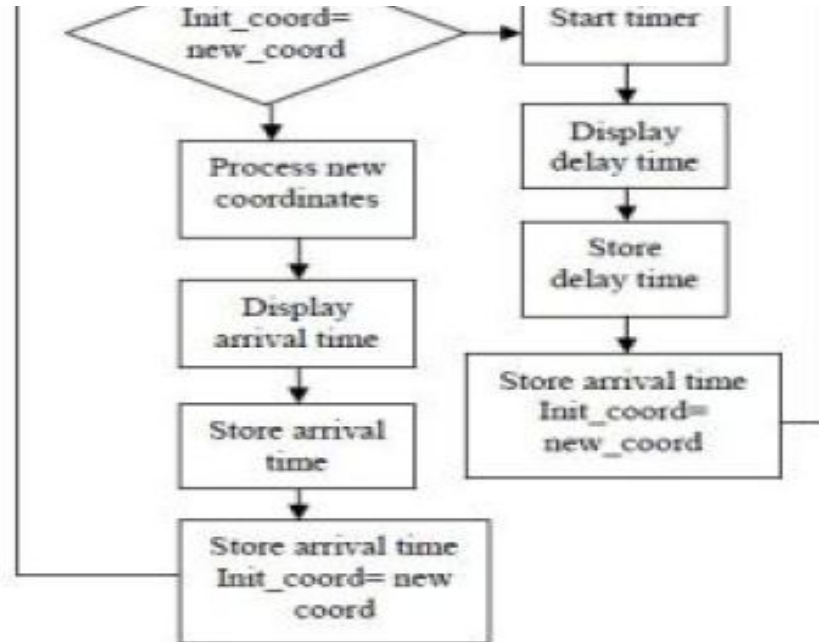
- The major challenge is to prevent hacking of the data.
 - It is also a bit difficult to provide continuous power supply.
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Public Transport System

Solutions

- Smart buses provide a solution to the increasing traffic and the demand for streamlined public transportation services.
 - Equipped with advanced computing, wireless communication, and global navigation satellite system (GNSS), smart buses can be monitored and co-ordinated meticulously to ensure services are performing within standards.
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Public Transport System



Natural Disaster Management

Objectives

- Address problems posed by recurring disasters like floods, drought, hurricanes, fires and earthquakes.
 - Reduce, or avoid, losses from hazards.
 - Assure prompt assistance to victims.
 - Public awareness during disasters.
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Natural Disaster Management

Inputs

- Data of natural disaster prone regions of the different areas.
- Data obtained from previous natural disasters.

Outputs

- Designing a plan dynamically and continuously for natural disaster management and informing or sending message to disaster prone areas.
 - Evacuation mechanisms installed in places prone to natural disasters.
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Natural Disaster Management

Challenges

- Availability of Medical resources
 - Mass Communication
 - Protection of citizens
 - Prediction
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Natural Disaster Management

Solutions

- Have surplus resources for any kind of emergency
 - Multiple disaster Response force teams in the cities.
 - Better disaster prediction algorithms.
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Natural Disaster Management

Flow Chart

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Terrorist Management System

Objectives

- The main goal of the system is to deal with all contingencies and tactics that terrorists aim and perform.
 - Help reduce crime rates and promoting law and order.
 - Design and planning of cities based on the factors that impact on security.
 - Conduction of massive awareness drives and educate vulnerable groups.
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Terrorist Management System

Inputs

- Data obtained from surveillance system.
- Data physically obtained from police forces.
- Data obtained from common public when they suspect.

Outputs

- Designing a plan dynamically and continuously for threat management and informing or sending message.
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Terrorist Management System

Challenges and Solutions

Challenge	Solvable/Not solvable	Reason
Protection of citizens	Partially Solvable	It requires a lot of police force depending upon the potential of threat and can be solved by collaborating with other state police force and if necessary communicating with Indian Military Services.
Engineering analysis of huge data	Solvable	Using supercomputing resources and latest deep learning and artificial intelligence algorithms this can be solved . But there is a cost-capability trade off here.
Training an accurate identification system	Solvable	Initially the accuracy will be pretty low, due to limited amount of training data. However, over time after the model is trained more and more, it will lead to more accurate identification. Hence, here there is a time-capability Tradeoff. This is because simulation takes a lot of time here.

Terrorist Management System

Training an accurate identification system	Solvable	Initially the accuracy will be pretty low, due to limited amount of training data. However, over time after the model is trained more and more, it will lead to more accurate identification. Hence, here there is a time-capability Tradeoff. This is because simulation takes a lot of time here.
Identification of sleeper cells.	Not solvable	These people behave normally and live like local residents. Identification of them is very difficult and it is possible only when we track every move of total citizens in a city which is highly impossible.
Identification of terrorist base camps	Solvable	These require high technology equipment like drones with wide range and other satellites information to track them . There is a cost tradeoff here.

Terrorist Management System

Functional Flow Diagram

Emergency Response System

Objectives

- The primary goal of this subsystem is to provide immediate response in case of emergency.
 - This system should be efficient and well-grounded.
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Emergency Response System

Inputs

- System would be getting input from surveillance team about a situation.
- Inputs from surveillance team include
 - Location of emergency
 - Description
 - Severity of the situation

Outputs

- Based on the input from the surveillance team the emergency response team should deploy required kind of support like police task force, medical support etc.
 - Output format from emergency response team
 - Required number of police personal
 - Medical Services
 - Fire extinguisher
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Emergency Response System

Challenges

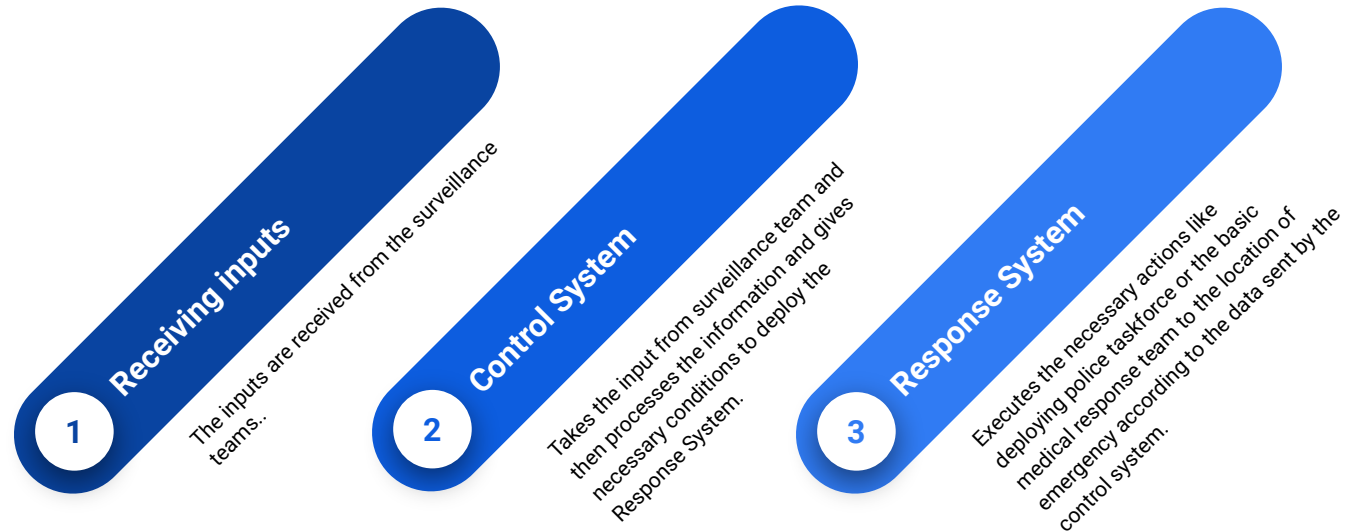
- Limited police force
 - Medical resources
 - Response time
 - Communication
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Emergency Response System

Challenges	Solvable/not Solvable	Reason
Limited police force	Manageable upto some extent	Requires the approval of higher authorities from the police department.
Medical resources	Manageable upto some extent	Requires more hospitals that are sufficiently equipped and have skilled staff.
Response time	Manageable upto some extent	Depends upon the situation.
Communication	manageable	With the on growing technology development, it is possible to have uninterrupted communication during a emergency situation.

Emergency Response System

FLOW DIAGRAM



Schedule

Future Goals

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