



SNS COLLEGE OF TECHNOLOGY



Coimbatore-35

An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A++' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF INFORMATION TECHNOLOGY

19CSE303 – ARTIFICIAL INTELLIGENCE
III YEAR IV SEM

UNIT V – LEARNING

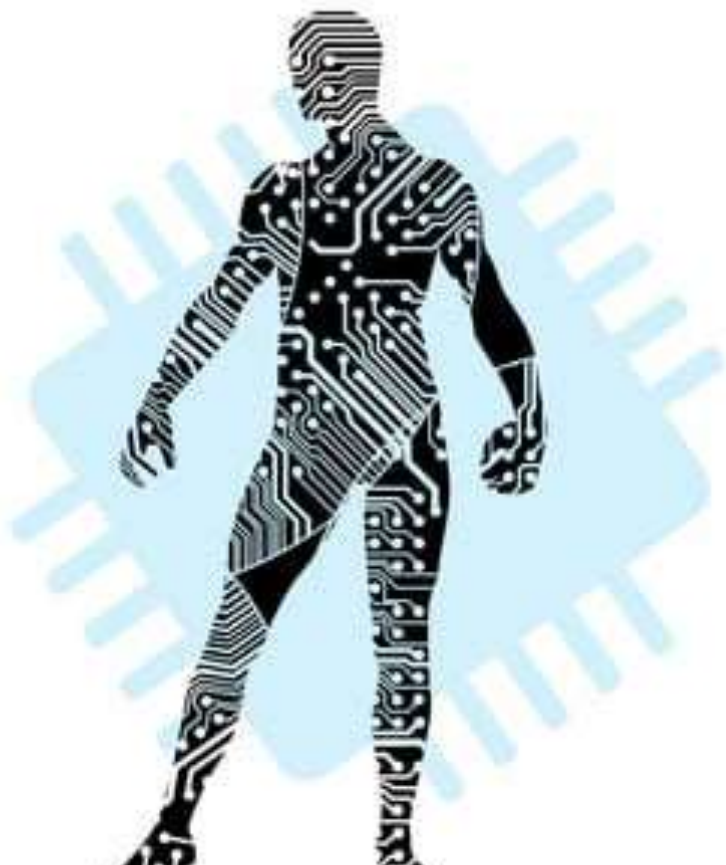
TOPIC : Security Case study

ARTIFICIAL INTELLIGENCE IN SECURITY AND SURVEILLANCE



AGENDA

- Introduction to Artificial Intelligence (AI)
- How AI works & its Applications
- China's Social Credit System : Case Study
- Current Scenario of Traffic in Mumbai
- How AI can improve Traffic Scenarios



INTRODUCTION TO ARTIFICIAL INTELLIGENCE (AI)

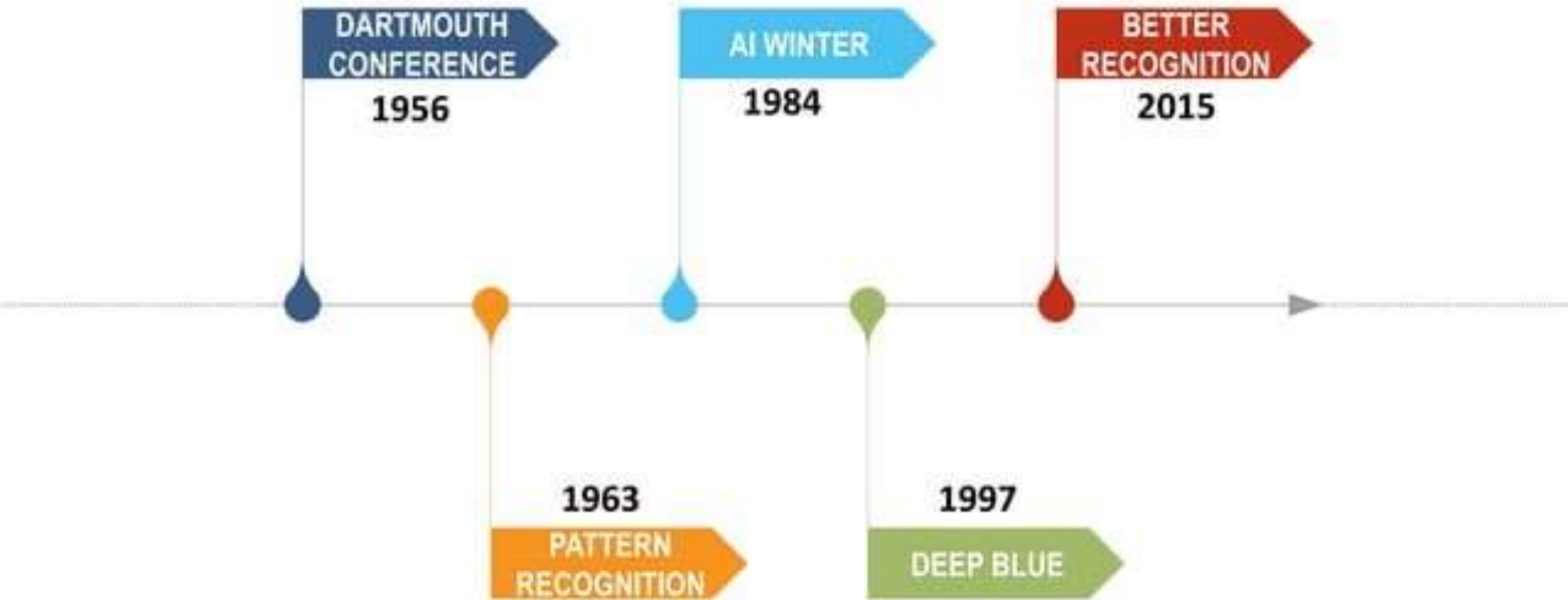
"The science and Engineering of
making intelligent machines."

- John McCarthy

(1956)



MILESTONES IN AI



HOW AI WORKS



APPLICATIONS OF SURVEILLANCE IN VARIOUS SECTORS

- Automotive
 - Self Driving Car
- Finance and Banking
 - Payment Gateway
 - Trading and Investing Management
- Healthcare
 - Virtual Nurses
 - Robotic Surgery
- Manufacturing
 - Prevention of theft
 - Operations Monitoring



CHINA'S SOCIAL CREDIT SYSTEM (CSCS)

- Aim
- Process



CHINA'S SOCIAL CREDIT SYSTEM (CSCS)



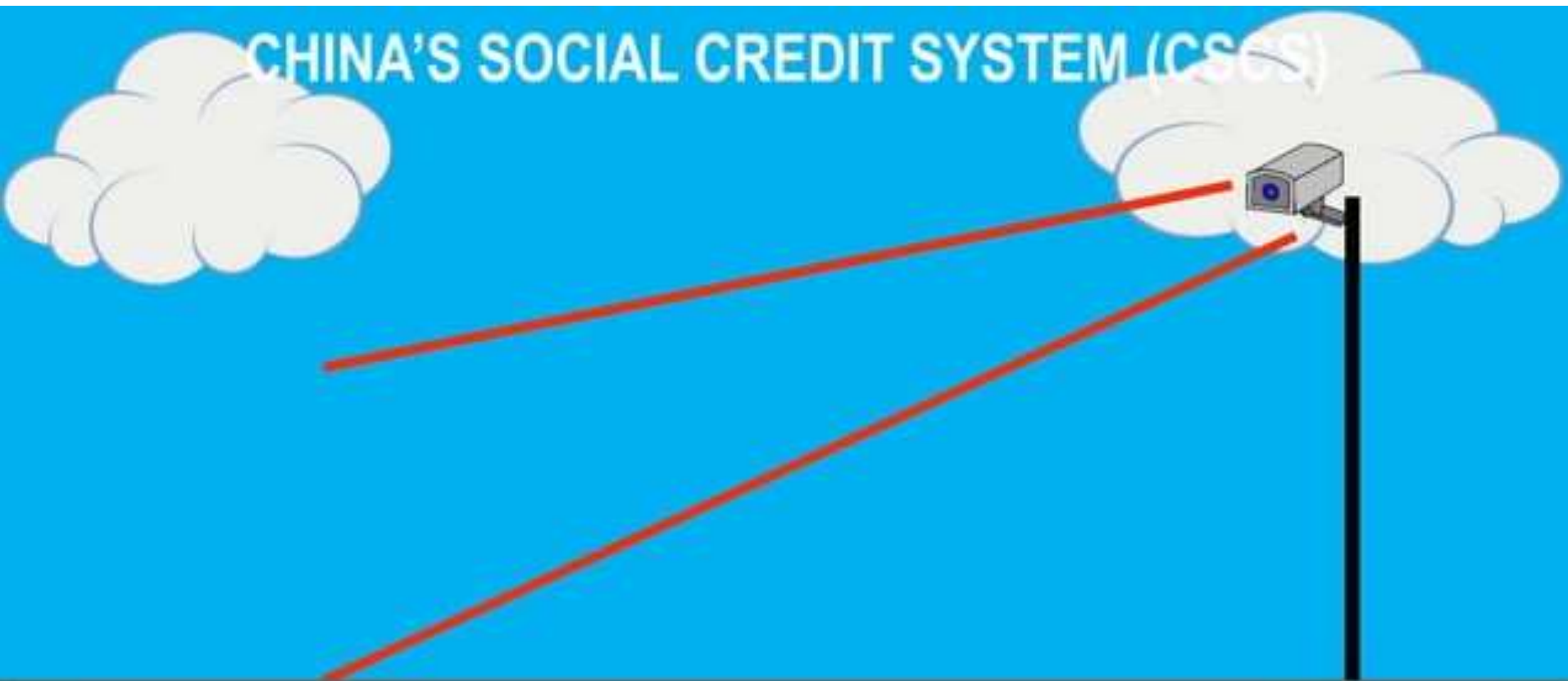
CHINA'S SOCIAL CREDIT SYSTEM (CSC)



CHINA'S SOCIAL CREDIT SYSTEM (CSCS)



CHINA'S SOCIAL CREDIT SYSTEM (CSGS)



CHINA'S SOCIAL CREDIT SYSTEM (CCSS)



CHINA'S SOCIAL CREDIT SYSTEM (CSCS)

Rewards

- Discount on shopping
- Easy accessibility to loan
- Discount on utility bills
- Skipping queues at airport, train station

Punishments

- Banned for travel in local transport for particular time frame
- Restricted admission of children to schools and colleges
- Throttling of internet
- Restricted from high paying

FEW TAKEAWAYS FROM CSCS

- Installation of large-scale infrastructure is possible
- If human beings can be tracked, then why not vehicles!

If China can use it for improvement of human behavior...

Then why can't we use it to save a human life!



TRAFFIC STATUS IN MUMBAI

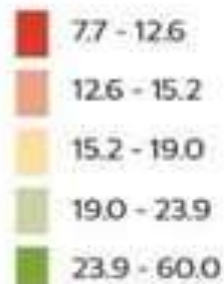


CRITICAL FACTORS

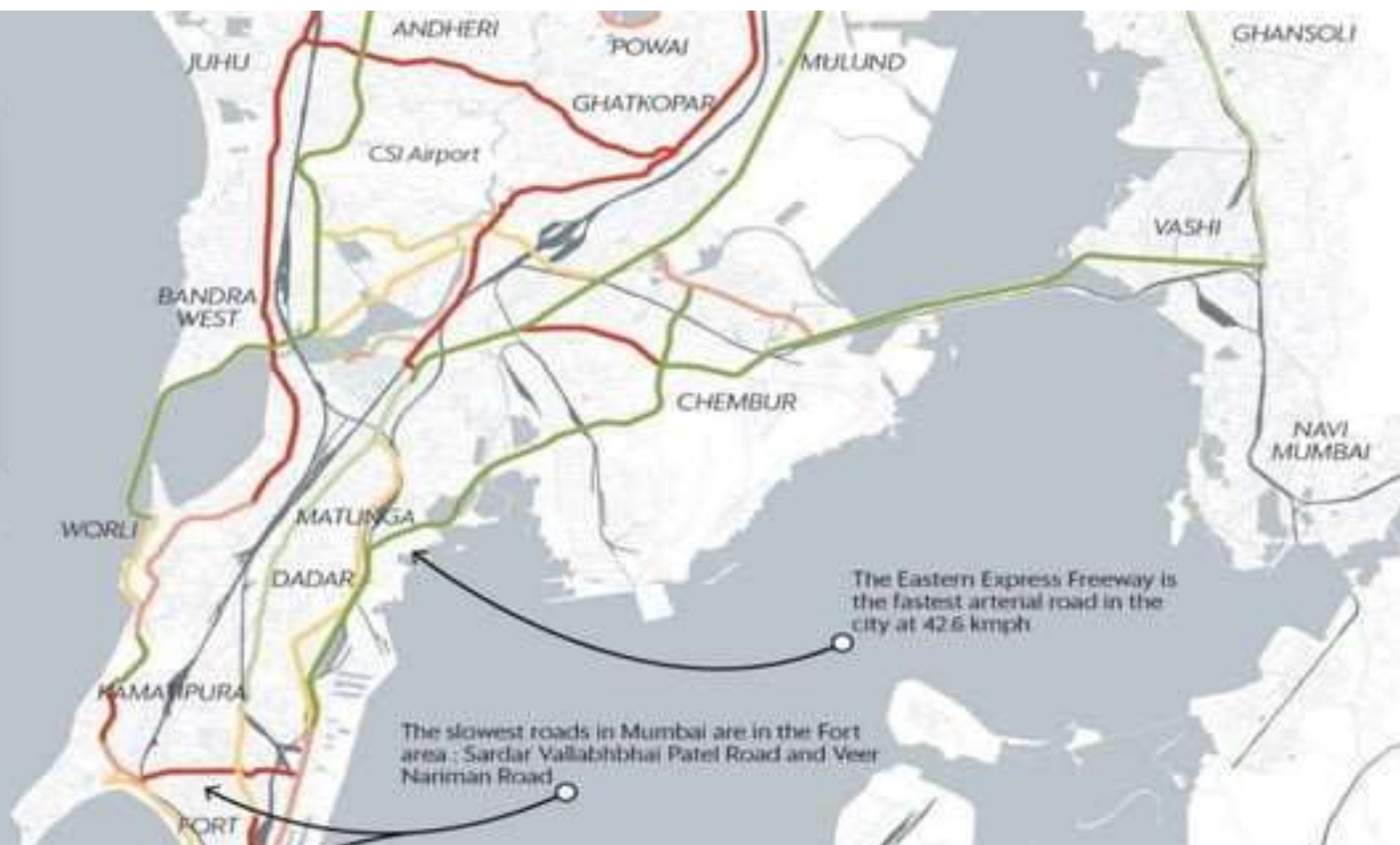
- 10 km commute in Mumbai takes 37 min
- Data characteristics-
 - 4 August to 11 August
 - Non-rainy week
 - Average speed in this week matched the "Typical speed" ranges provided by Google Maps
- Geographical challenge
 - A city with a narrow strip of densely populated land jutting out into the sea makes it more difficult to ease traffic pains

Mumbai

Average speed
(in kmph)

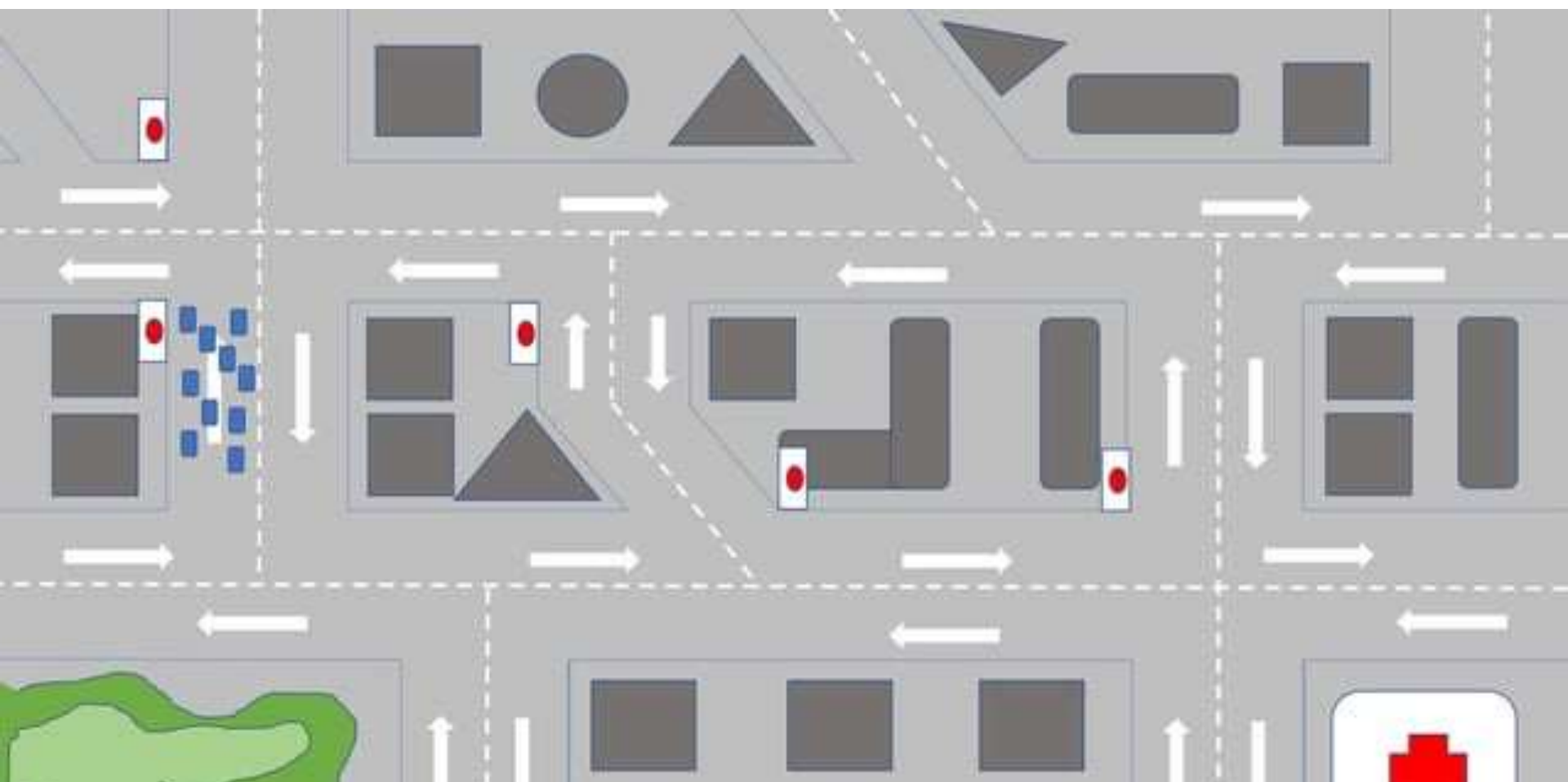


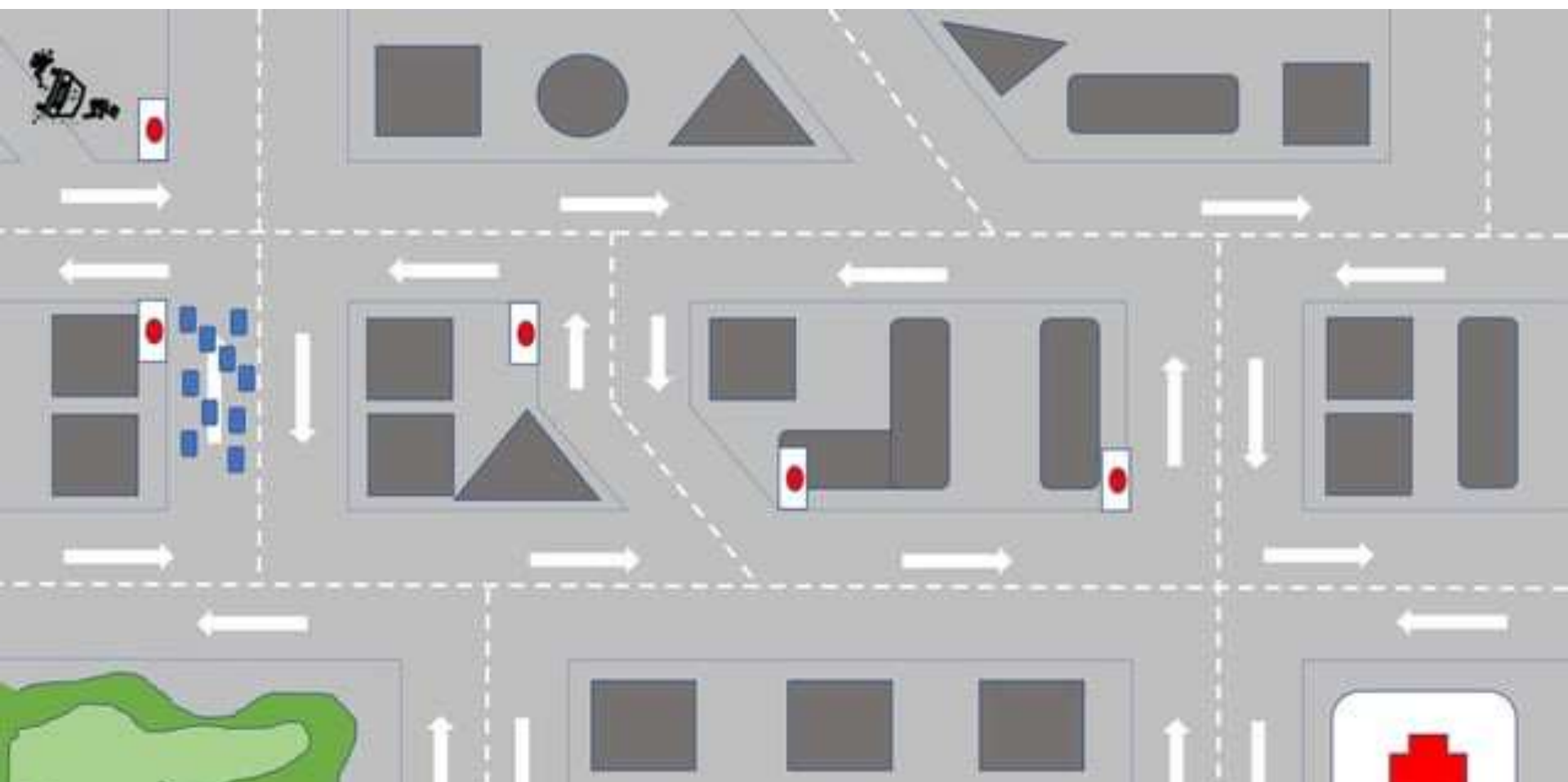
Arabian Sea

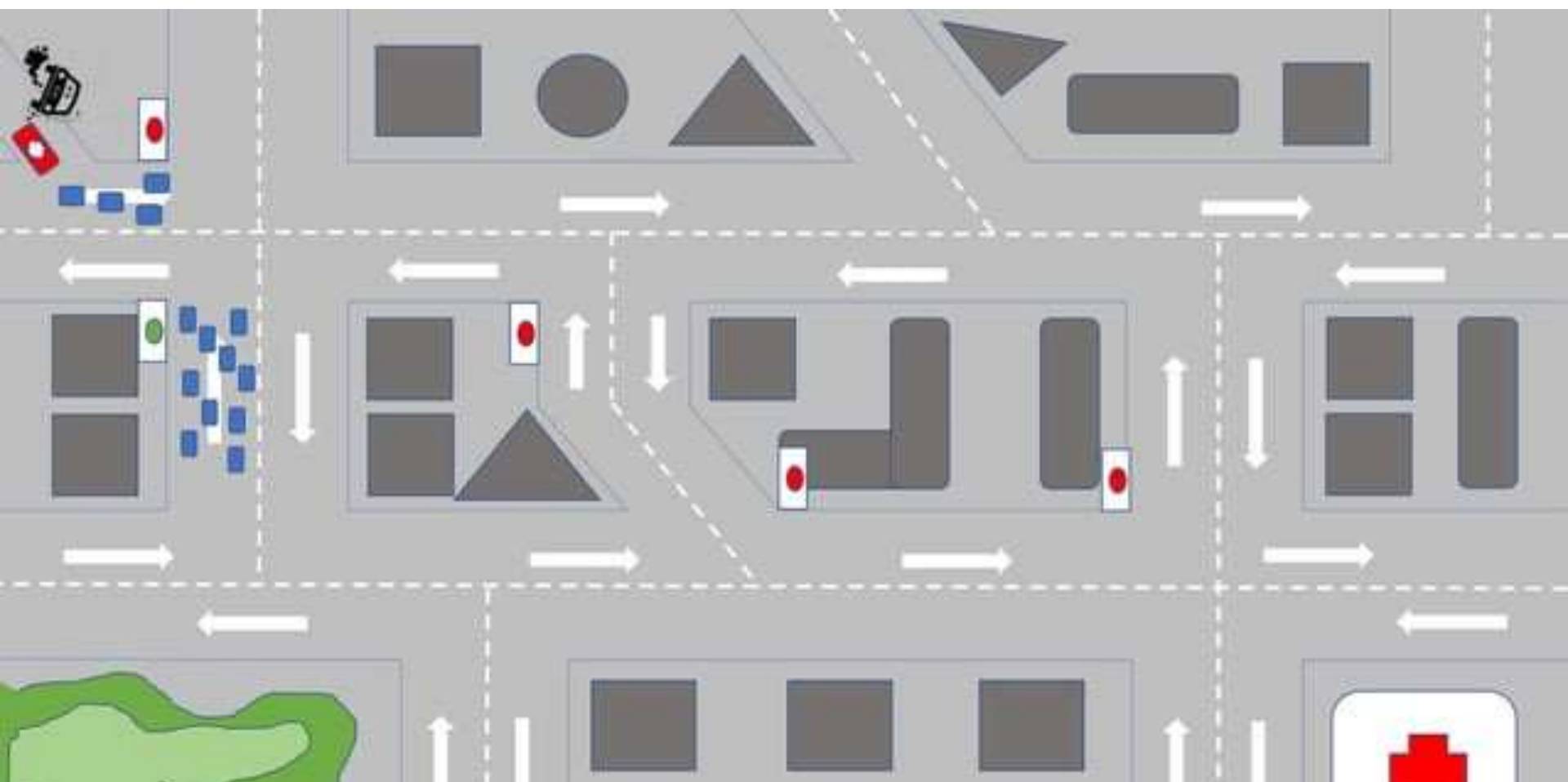


CHALLENGES FACED BY EMERGENCY VEHICLES IN TRAFFIC









THREAT TO LIVES

Infant died due to delay in treatment as ambulance got stuck in traffic: Report

Saturday, 25 August 2018 | PNA | Chandigarh



The committee constituted by the Haryana Government to investigate the death of an infant at Sonapat has found that the ambulance carrying the baby was stuck in traffic jam for about 20 to 30 minutes on Tuesday due to the cycle rally of state Congress chief Ashok Taneja.

The Director General, Haryana Health Services, Dr Satish Agarwal on Friday submitted investigation report in the death case of newborn in Sonapat to Health Minister Anil Vij.

After receiving the report, the Health Minister said that the committee has informed in its report that all documents were obtained and statements were recorded of the ambulance driver, fleet manager and paediatrician. On the basis of these evidences, the main reason for the death of newborn was delay in reaching hospital as the ambulance was stuck in traffic, he said.

The members of the committee constituted to investigate the matter including deputy civil surgeon and senior medical officer thoroughly investigated the matter, Vij said.

The committee in its report has mentioned that a call was received at Sonapat office of National Ambulance Service for ambulance from Divya Private Hospital Manjari Pysu at 11:21 am to refer a newborn to Civil Hospital Sonapat. Acting swiftly, the hospital management sent the ambulance from Sonapat Health Centre, Pashpala, at 11:30 am.

Choking life: 12 on way to hospitals die in traffic jams



BILASPUR: At least a dozen people, especially those injured in road accidents, lost their lives in last six months in the city, while on the way to hospitals. Patients died on the way as they could not reach hospital on time because of heavy traffic on the road resulting in the ambulances getting stuck in traffic jams.

HOW AI CAN HELP TO TACKLE THESE CHALLENGES



ROLE OF AI

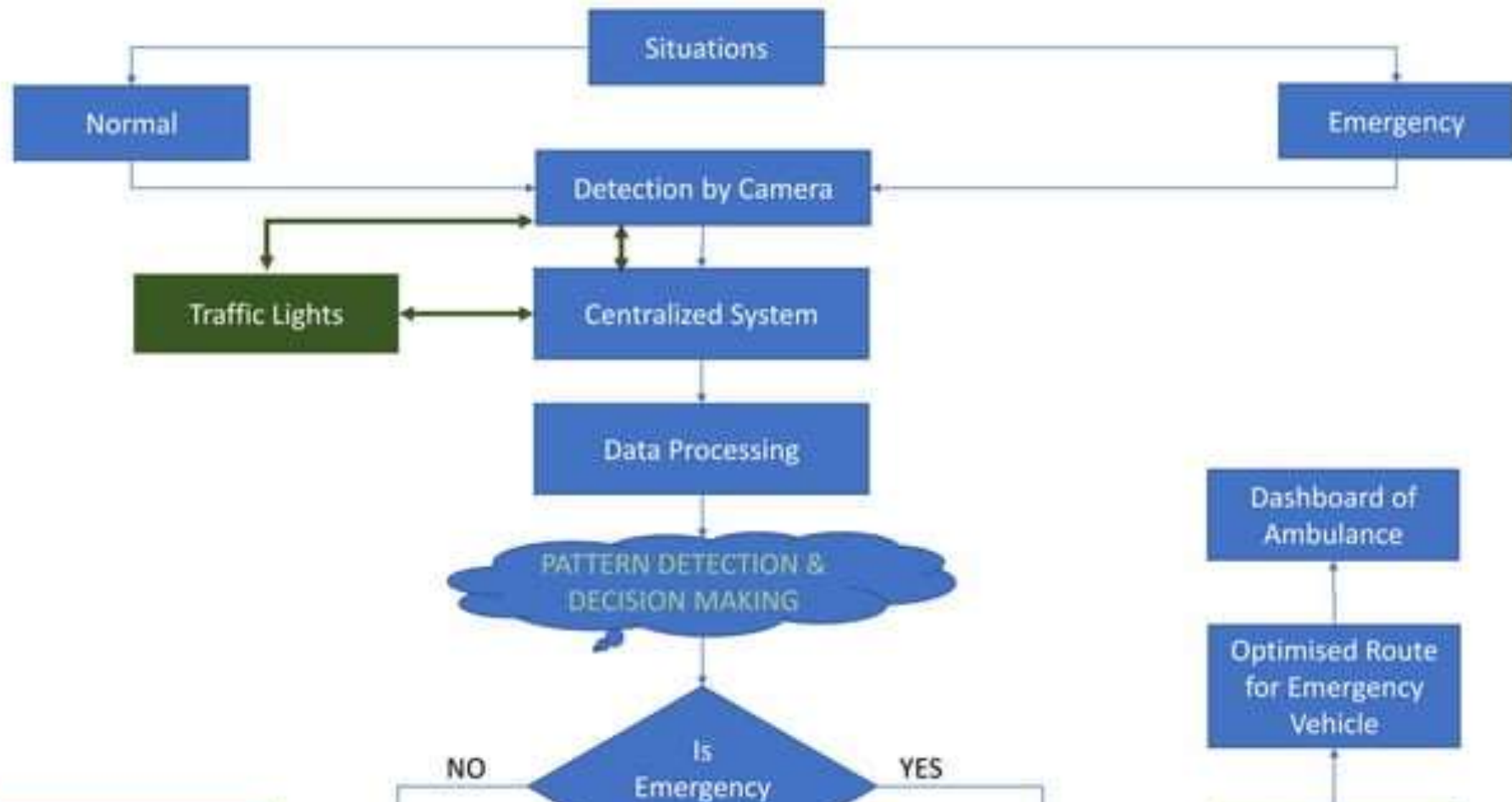
- Surveillance through installation of millions of cameras and using **Data** of existing cameras
- Pattern recognition and **Decision Making**
- Flow of **Information** to the driver
- Synchronization with traffic system, cameras and device



AI

BLOCK DIAGRAM OF AI BASED SURVEILLANCE SYSTEM





DRIVER DISPLAY UNIT

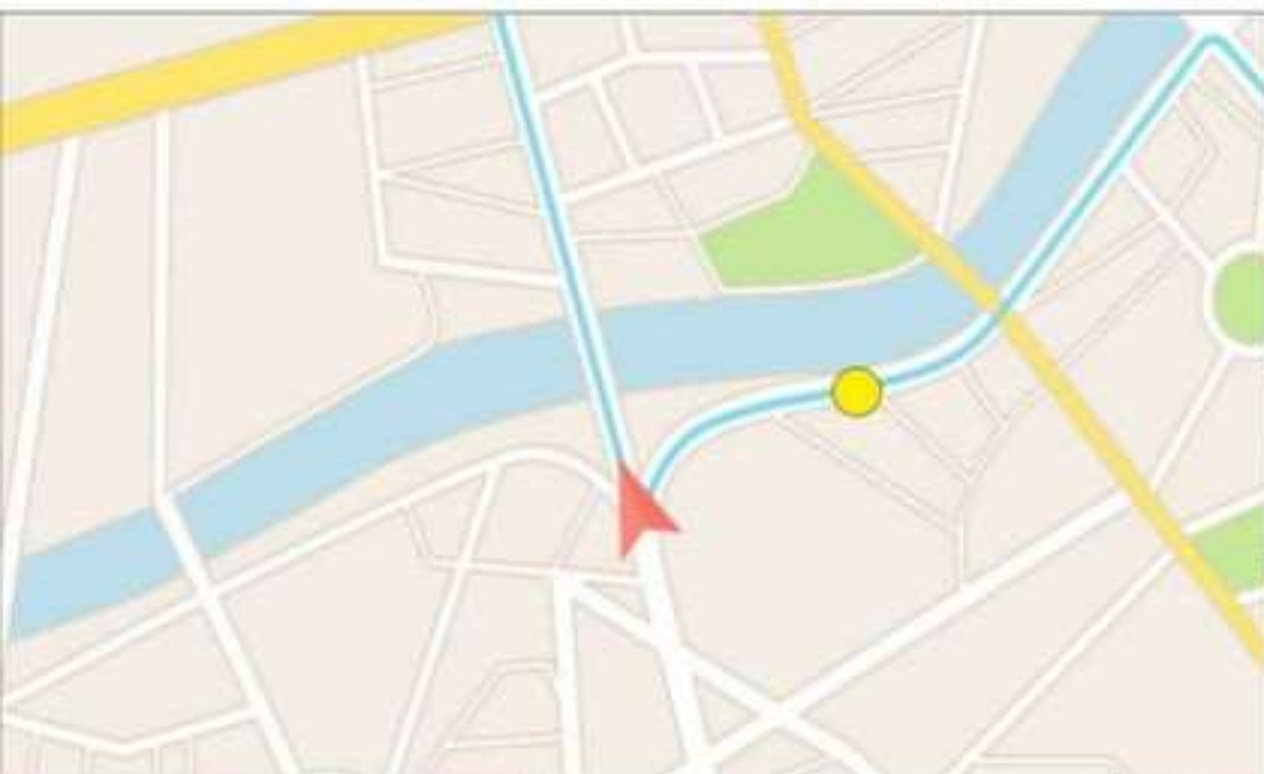
CLICK HERE TO
START TRIP



DRIVER DISPLAY UNIT



REPRESENTATION OF DASHBOARD



ESTIMATED TIME TO REACH

25 mins 45 seconds

NAME OF HOSPITAL

JEEVAN HOSPITAL

PRESS HERE TO INFORM HOSPITAL

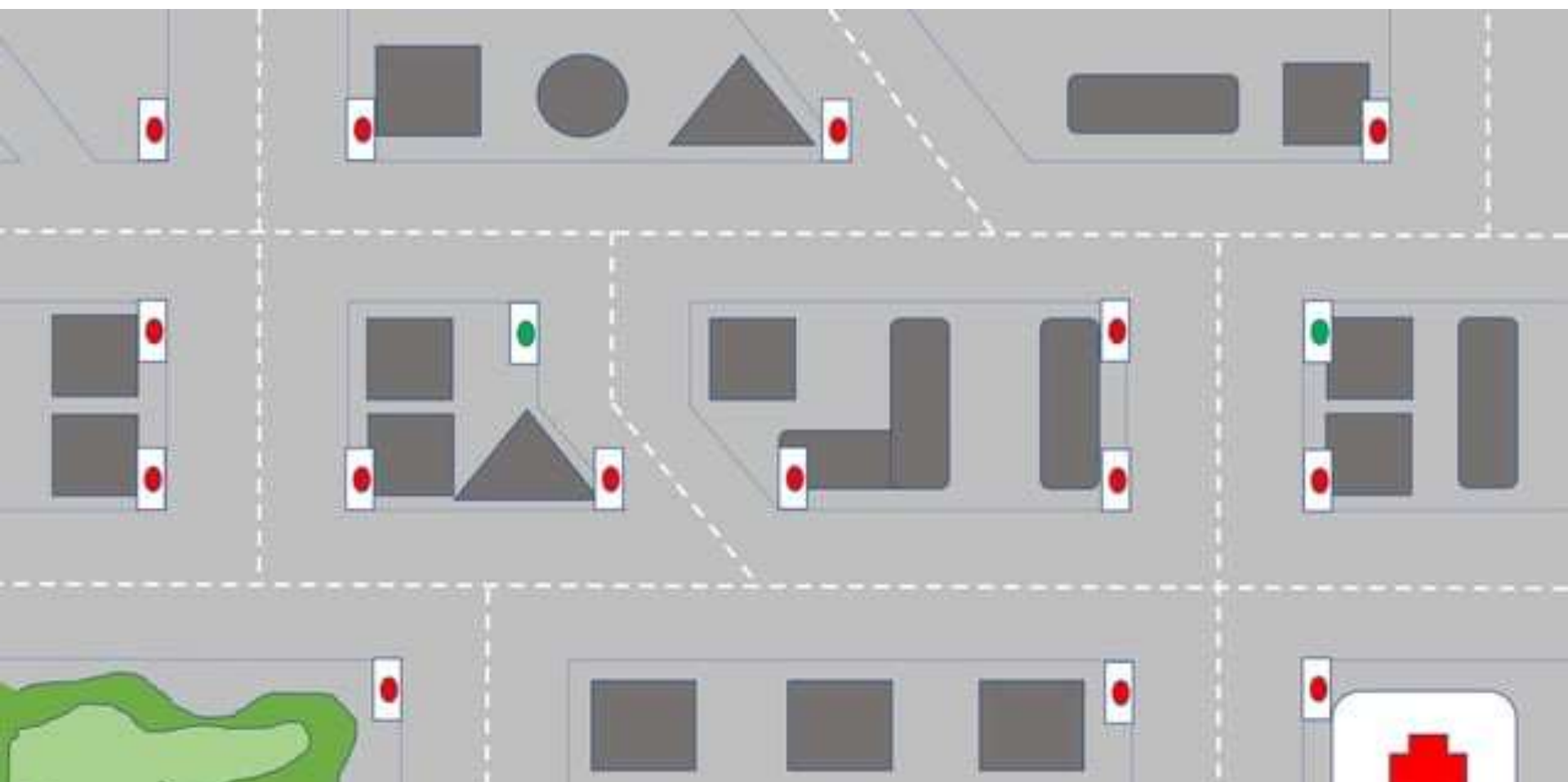


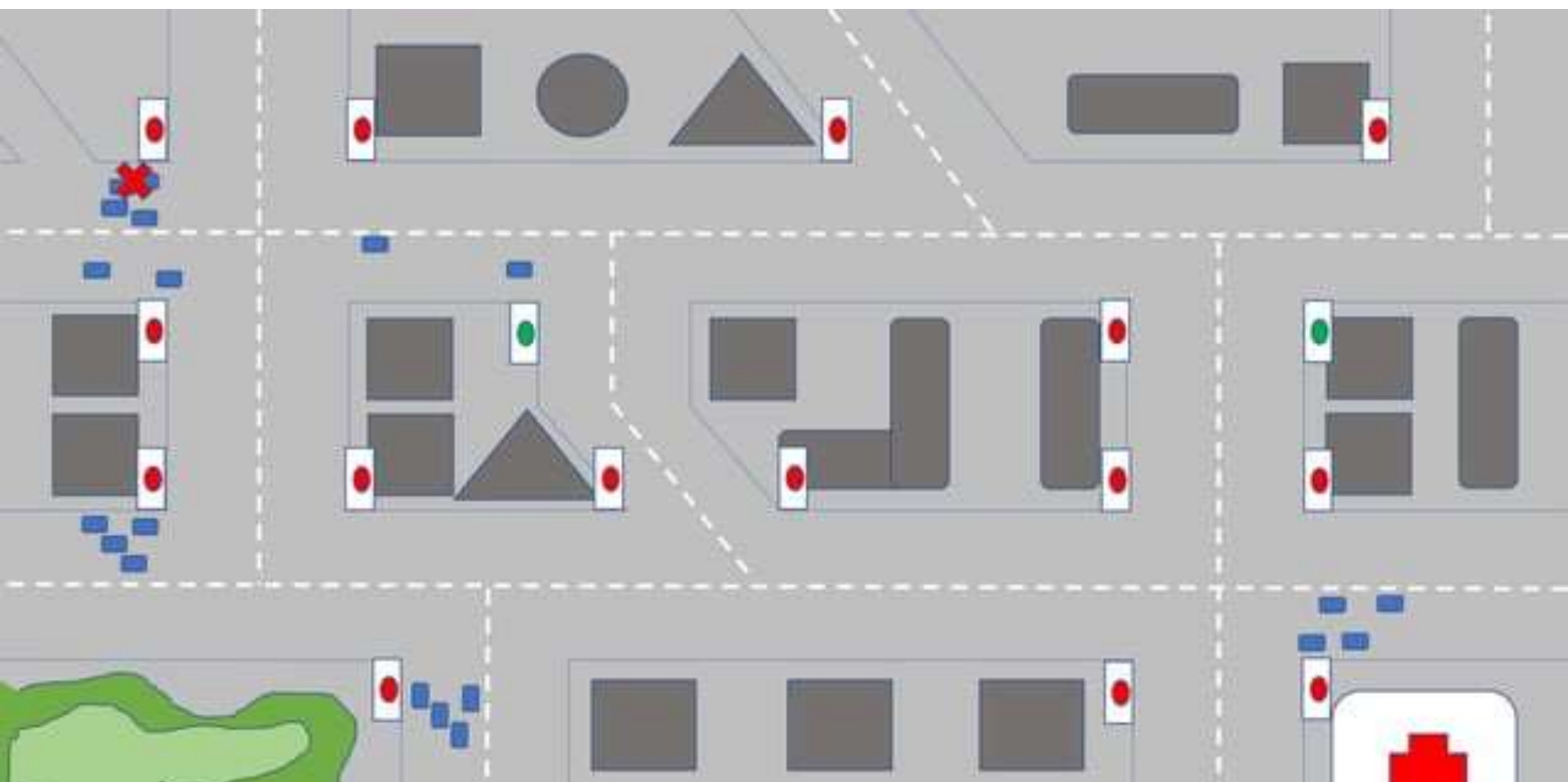
Accident detected

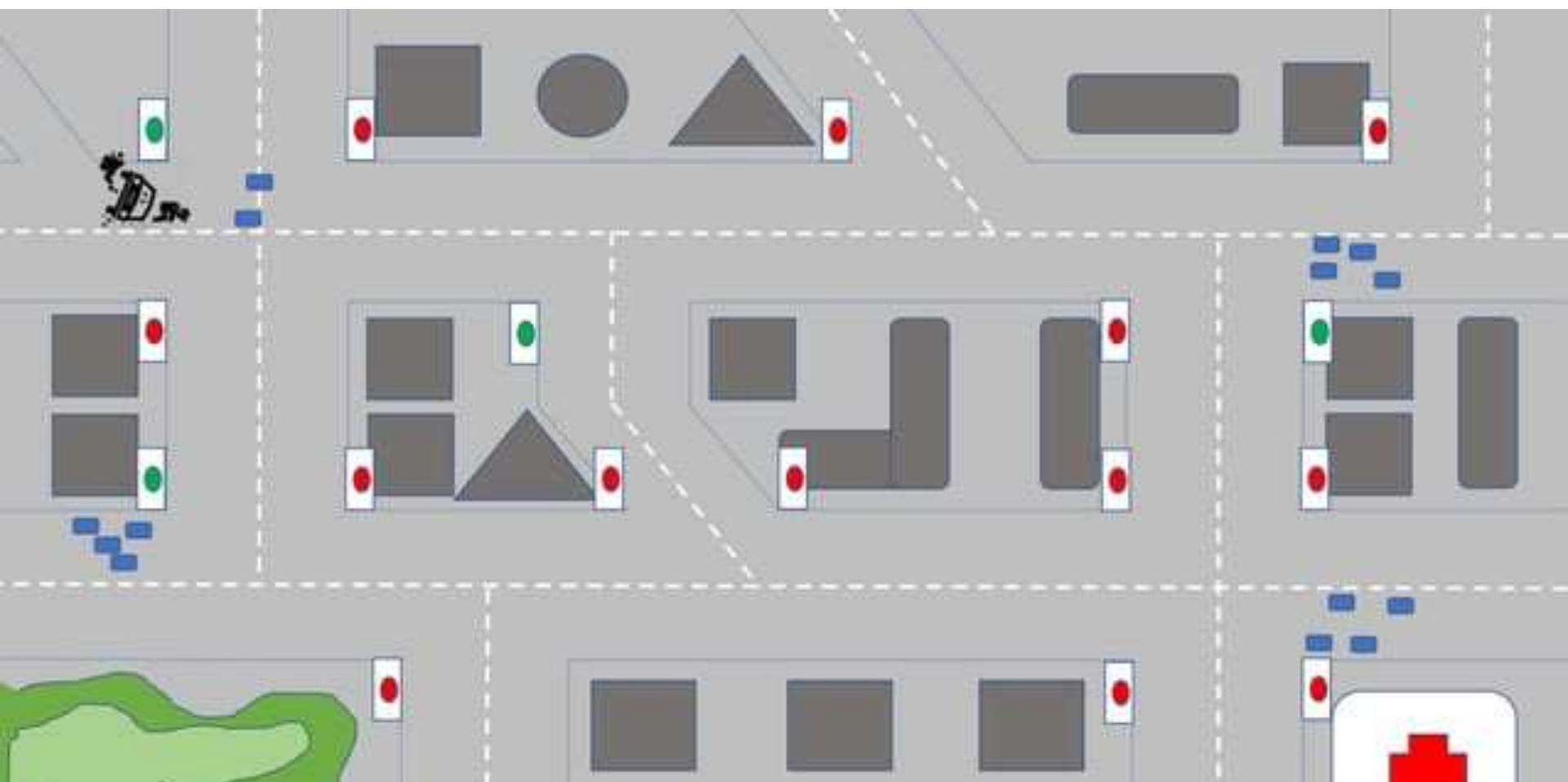
CURRENT LOCATION

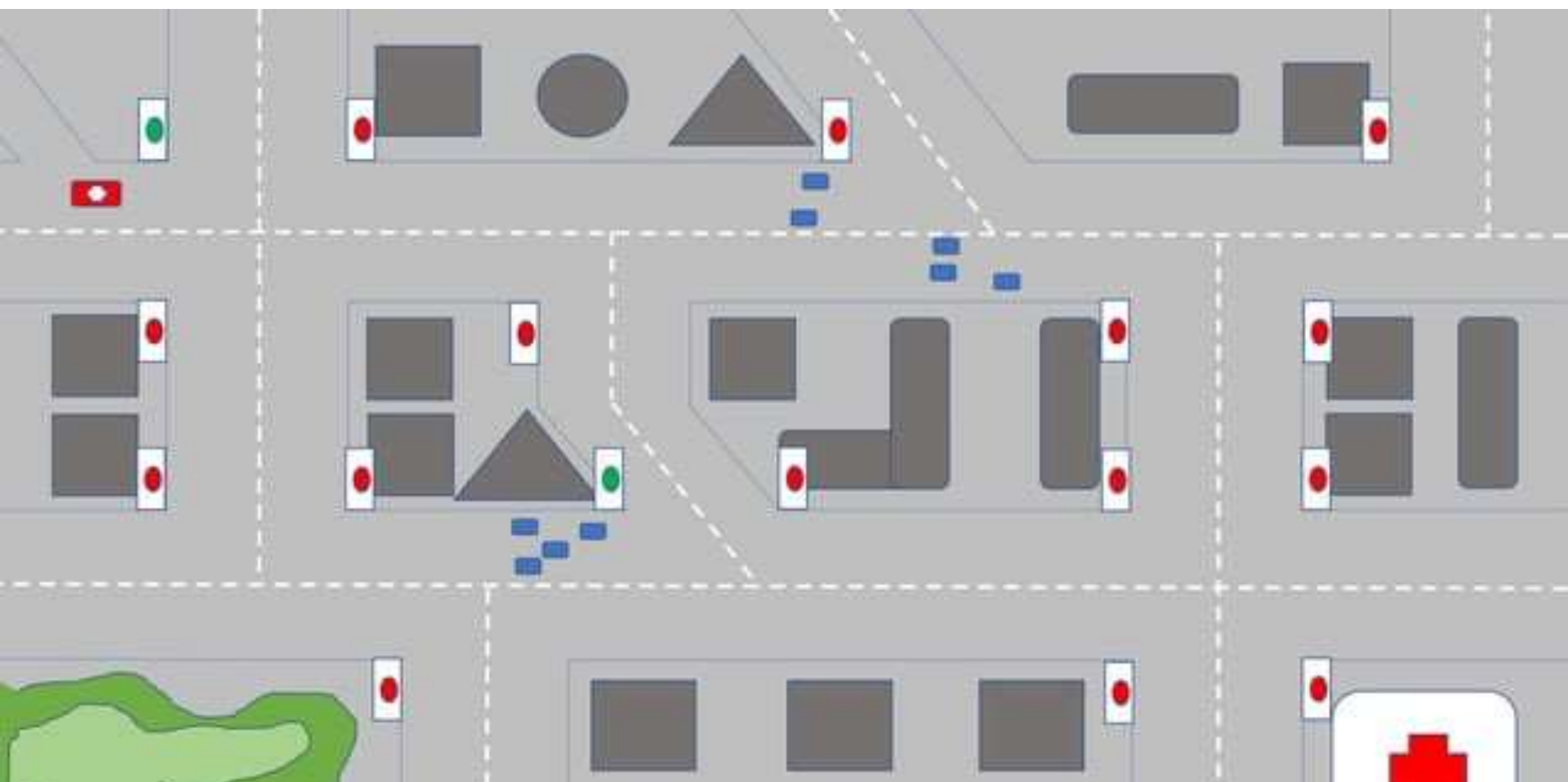
ROUTE SELECTED

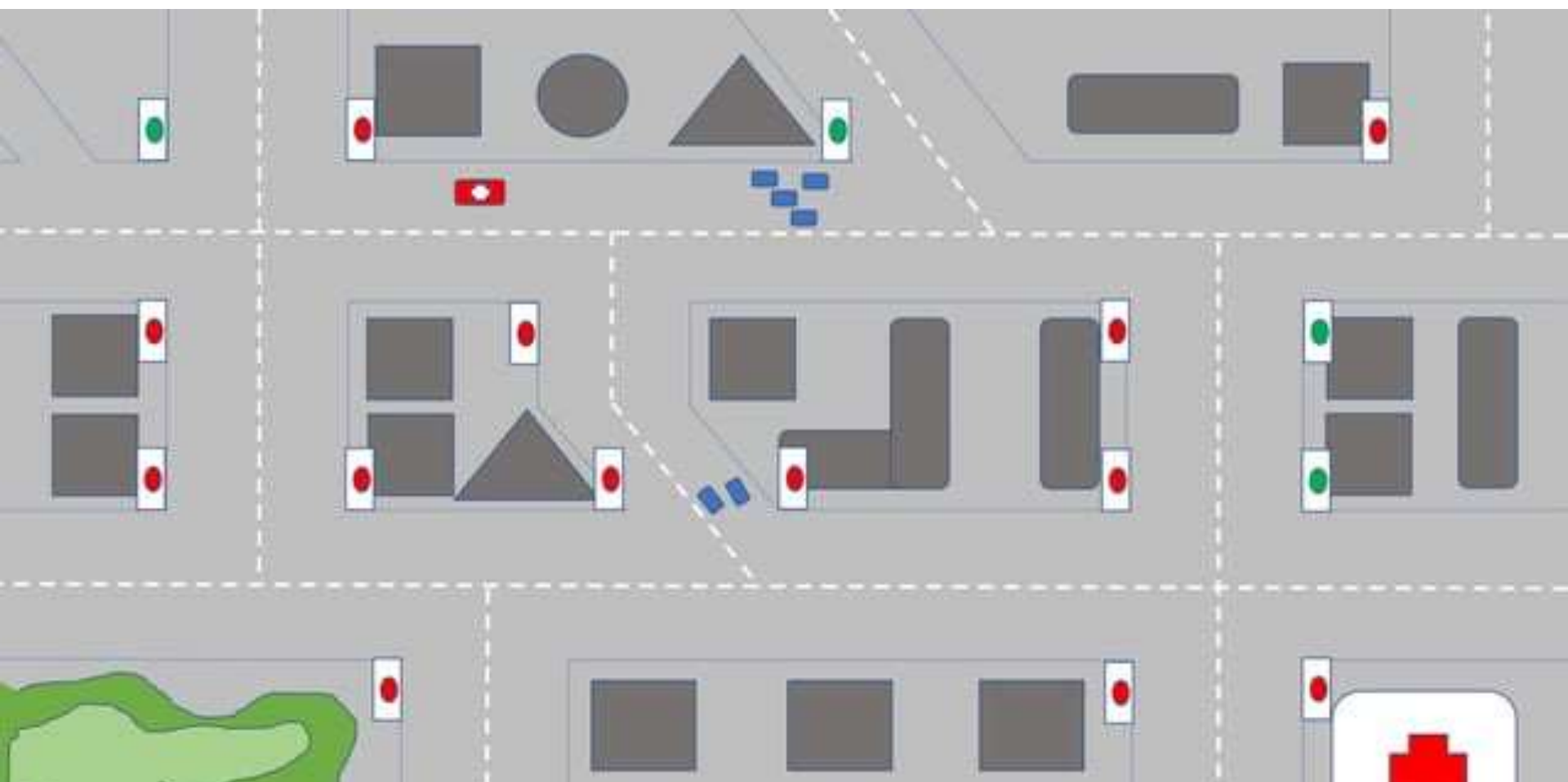
COMMUNICATION CENTRE

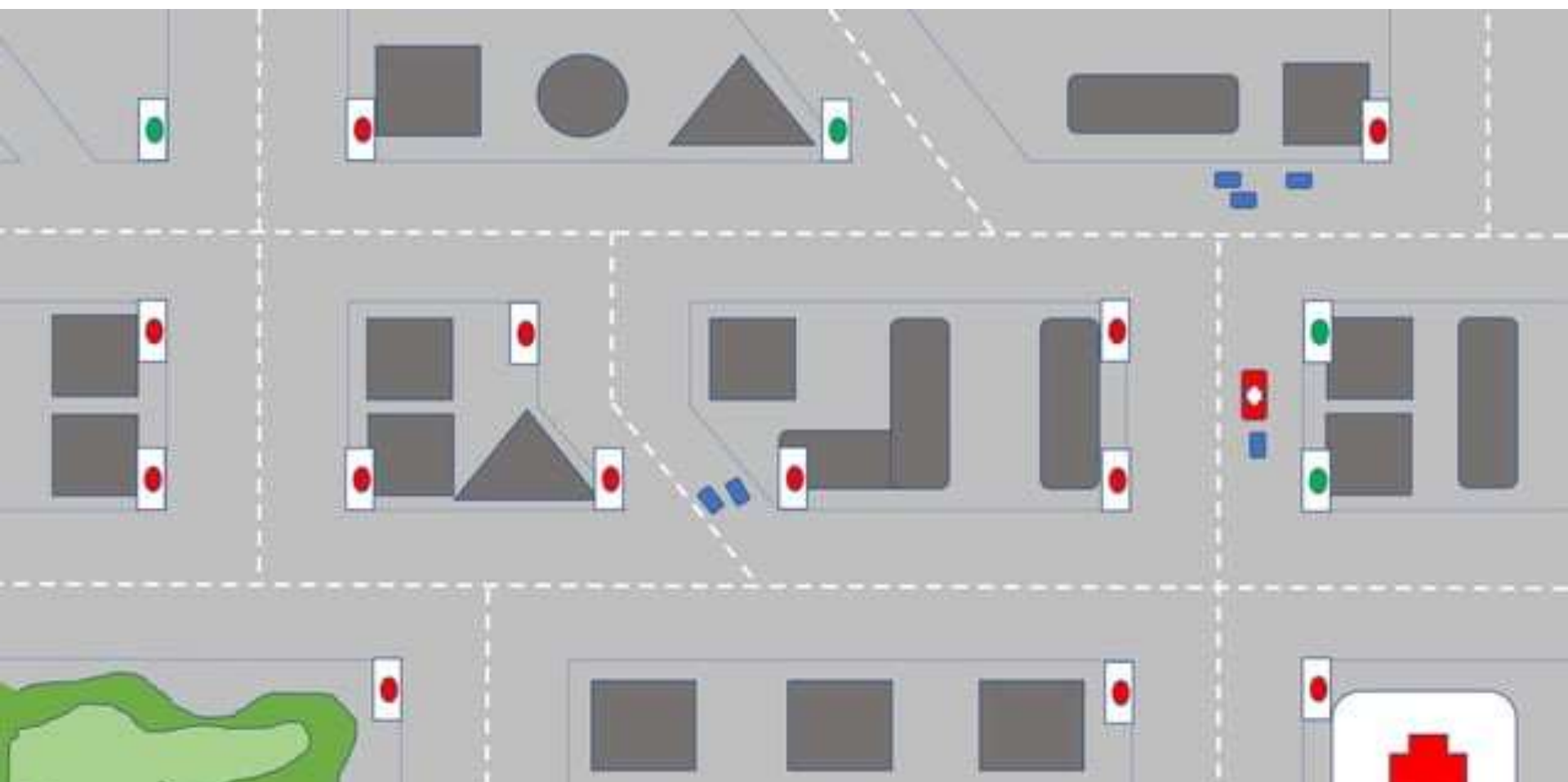










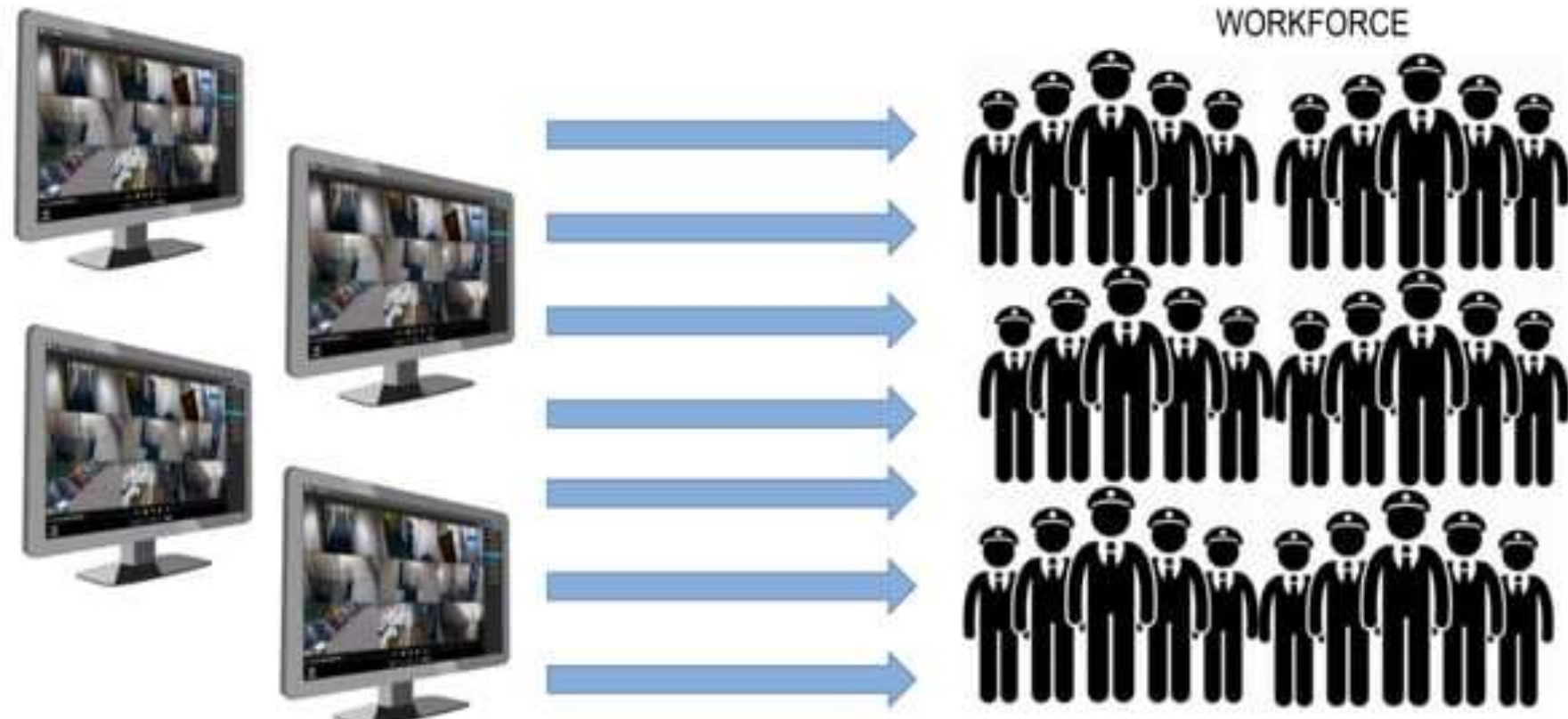


HOW WILL AI HELP TACKLE THESE PROBLEMS?

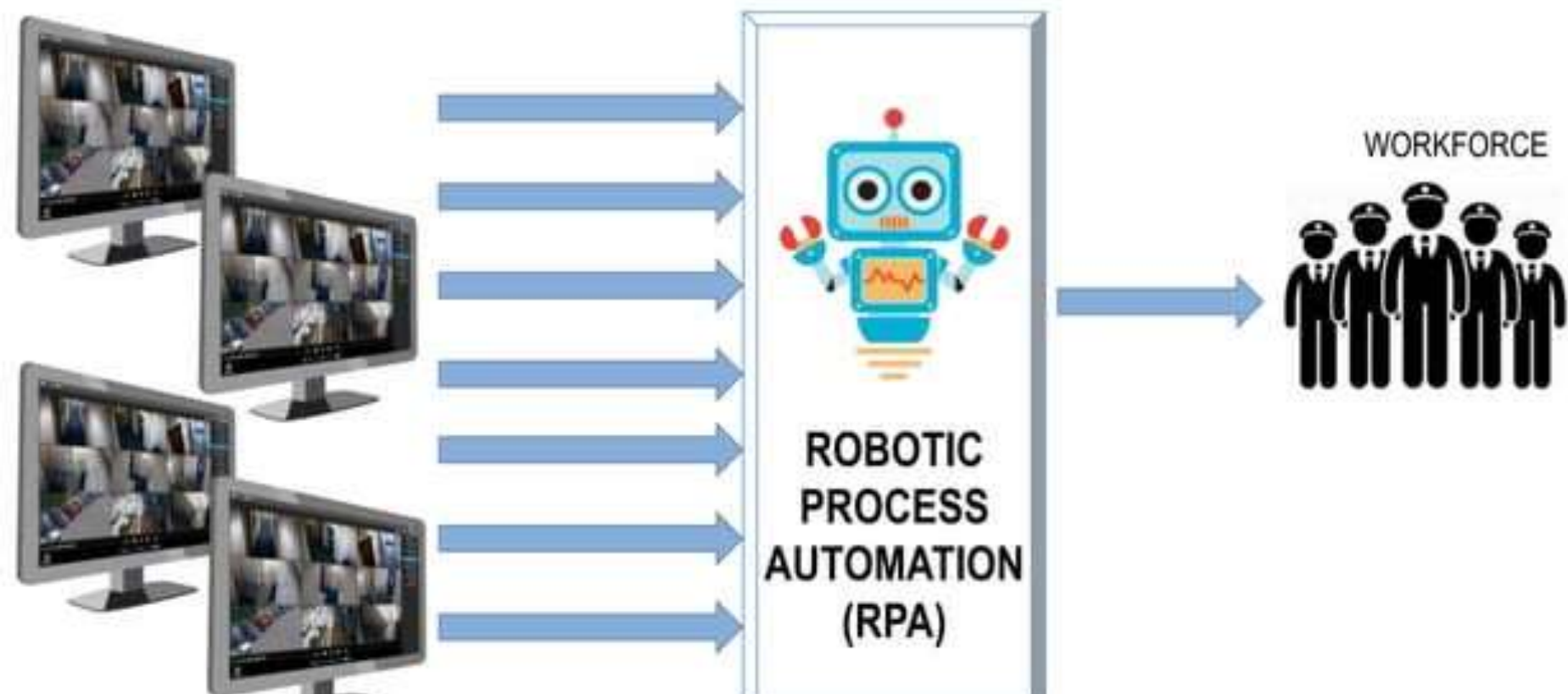
- To enable a continuous path for ambulances without letting them stop at signals
- To identify problems on roads due to natural disasters and accordingly determine routes for Ambulances, Police Vans and Fire Brigades



TRADITIONAL MONITORING SYSTEM



IMPROVING MONITORING EFFICIENCY USING AI



COMPARISON BETWEEN TRADITIONAL WORKFORCE AND

Sr. No.	Traditional Workforce	Robotic Process Automation (RPA)
1	Limited working hours	24 x 7 monitoring
2	Observation is limited to few cameras	RPA can monitor hundreds of cameras at a time
3	Low in accuracy, reliability & efficiency	High in accuracy, reliability & efficiency



FUTURE OUTLOOK



AUTO-DETECTION OF CALAMITIES

- Landslide
- Water logging
- Accidents
- Mob gathering
- Fire detection on roads



BANKING AND FINANCE

- Cash Transport Cars
- Commodity Transport Cars



INFRASTRUCTURE

- National Highways and Roads
- Fly Overs
- Metro Bridges



AI

RAILWAY TRACKS MONITORING

- To observe railway tracks for cracks or deformations
- To monitor if route has been affected by calamities



BENEFITS OF AI ENABLED SURVEILLANCE

- Can improve travel time by 30-40% for emergency vehicles
- Can decrease incidence clearance time by 20-30%
- Can help to reduce driver's stress
- Faster information flow



SUMMARY

- Relevance of Social Credit System to India
- If China can use it for social behavior, why can't we use it for cautious behavior?



THANK YOU

