Smart Traffic Lights – Prioritizing Emergency Vehicles

- **Problem Statement ID - SIH1594**
- **Problem Statement Title - Student Innovation**
- **Theme - Transportation & Logistics**
- **PS Category - Software**
- **Team ID -**
- **Team Name - TrafficCrew**

TrafficCrew

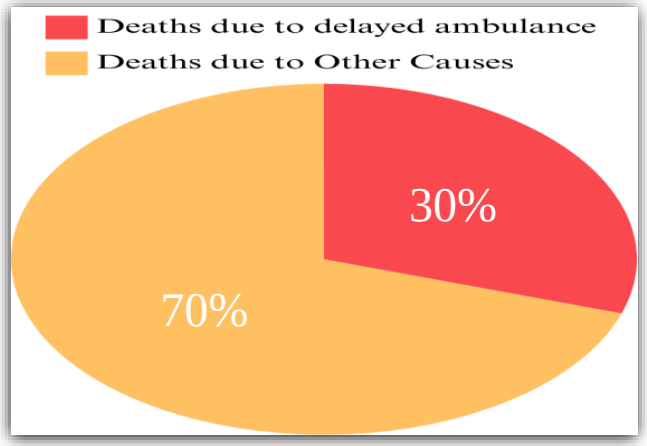
SMART TRAFFIC LIGHTS

Integrating Deep Learning Technology to detect emergency vehicles

SMART INDIA HACKATHON 2024

Ambulance Stuck at Traffic Signal

Fire – Crime - Medical Emergencies



Deaths caused by delays - india

Proposed Solution :

- Detecting emergency vehicles stuck at traffic signals
- prioritizing them by automatically activating a green signal.

Innovation & Uniqueness :

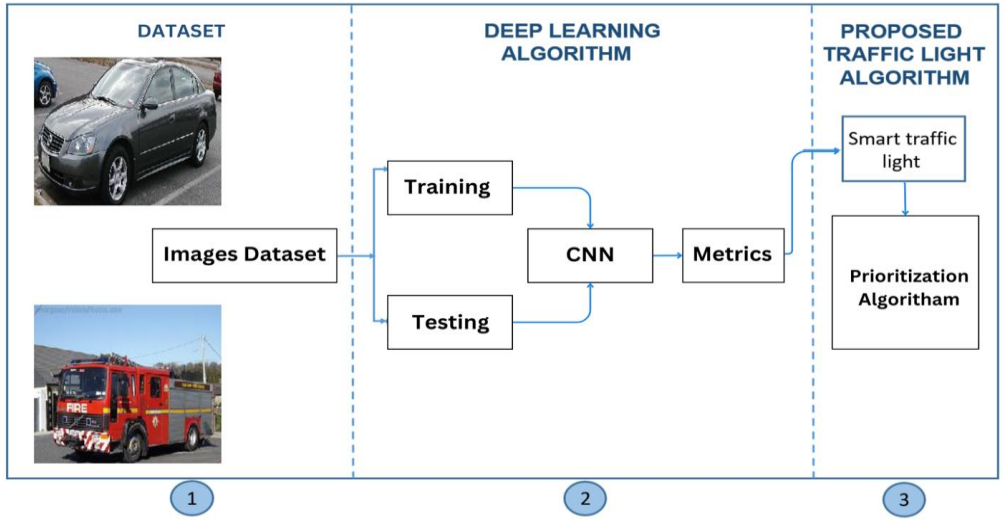
- Advanced Prioritization Algorithm.

TrafficCrew

TECHNICAL APPROACH

SMART INDIA HACKATHON 2024

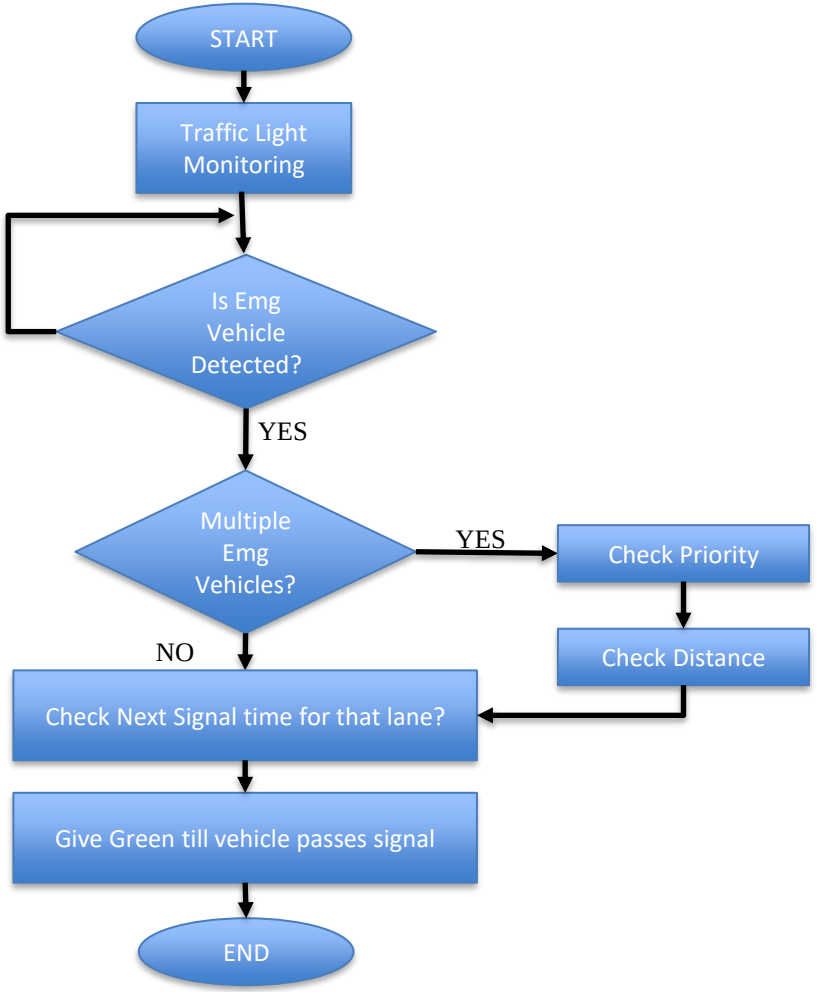
Block Diagram:



Technology Stack :

- Python.
- TensorFlow, CNN, Yolov5
- **Hardware:**
- Cameras(Night Vision, Weather Resistance, 1080p-4k)
- GPUs -512 CUDA cores

Flowchart/Algorithm:



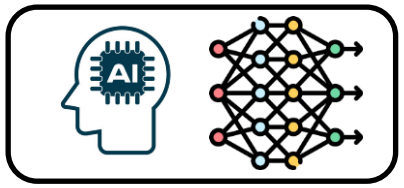
Output:

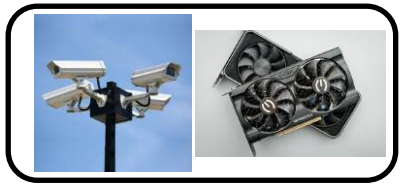
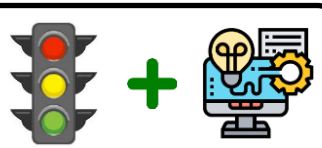
TrafficCrew

FEASIBILITY AND VIABILITY

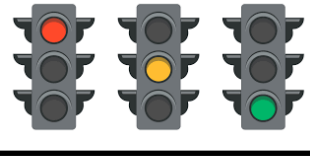
SMART INDIA HACKATHON 2024

Feasibility

- Reliable Technology → 

- Available Resources → 
- Cost-Effective → 
- System compatibility → 

Viability

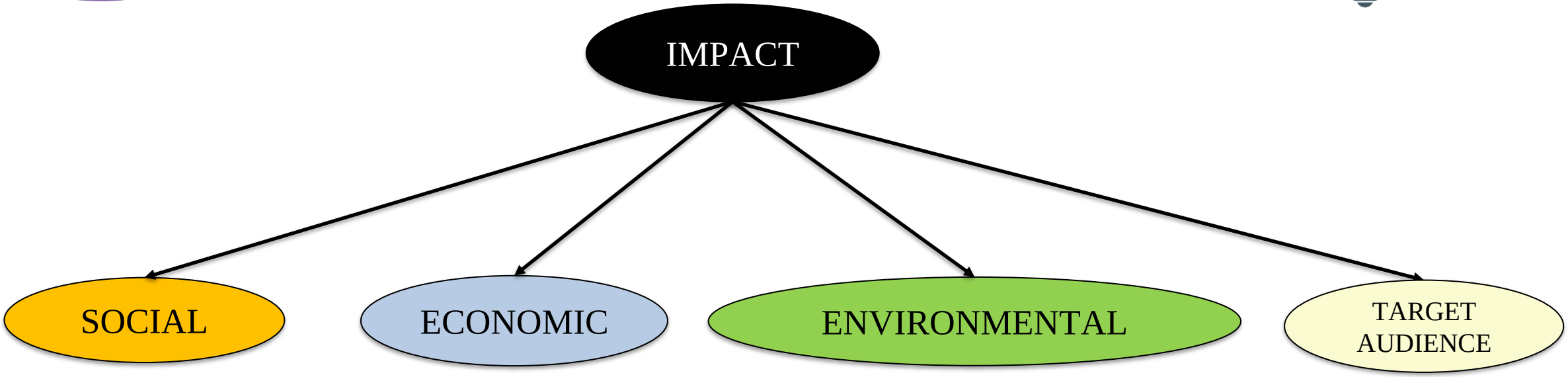
-  ← High Demand
-  ← Improved Flow
- 

← Trend Alignment
-  ← Enhance Efficiency

TrafficCrew

IMPACT AND BENEFITS

SMART INDIA HACKATHON 2024

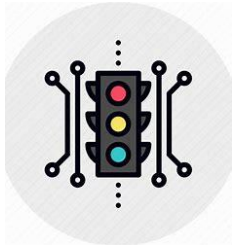


BENEFITS

Efficiency

Safety

Scalability



Integration

TrafficCrew

RESEARCH AND REFERENCES

SMART INDIA HACKATHON 2024

[1] Dataset – [https://www.kaggle.com/datasets/abhisheksinghblr/emergency-vehicles-identification]

[2] Working of Traffic Lights- [https://practical.engineering/blog/2019/5/11/how-do-traffic-signals-work]

[3] Traffic Rules and Traffic Violation Fines in India (As per MV Act 2019)[https://www.acko.com/traffic-rules/]

[4] B. K. Shashi, "Ambulance Stuck in Traffic: Scary Right?" Medium,

[5] A. S. Kumar, and R. Patel, "Advanced Traffic Clearance System for Emergency Vehicles," *ResearchGate*.