

Save Life With AIJha, Deepak¹ and Khandelwal, Jyoti²¹B.Tech. Student, University of Engineering & Management, Jaipur²Associate Professor, University of Engineering & Management, Jaipur**Abstract**

In the present time accidents gradually increasing in India and also the deaths. Some death occurs at the spot and some after the accidents because no single facility like Medical Aid arrived at the accident spot on time. So, here we introduce an AI loaded device which identify the accident and report it to the nearest police station with the real time accident occurrence footage so that they can identify the exact location of the accident and proceed to the next further actions like sending medical aid for the victim, cranes and hydras to clear the highway so that no traffic jam is being occurred. The working of this system is very simple. An AI loaded CCTV is being mounted at the divider of the highway for the up and town lanes. It will have a maximum range to cover the highway of either side of lane. As any accident occurs, this will record the footage of at least 15-20 sec or minimum of that accident and immediately send it to the nearby Police control room as highest priority. As the control room is always alert the duty officer will confirm with single click, a direct message or call will go the hospital and the breakdown services with the accurate location that they can arrive at that location as soon as possible. Hence there will be high chance that the suffering person can be saved. This device is mainly for the remote areas like highways passing the forest, hills.

Keywords: Machine learning, data analytics, CNN, RNN, artificial intelligence.

1. Introduction

Keeping people safe and preventing serious harm is a top priority. This involves taking steps to address different situations, like natural disasters, accidents, medical

emergencies and violence. Saving lives may mean providing [1] medical care, first aid, evacuating dangerous areas, following safety rules, and taking action to avoid potential risks.

Preserving human life and averting injury are the primary goals. Humanitarian relief and public health both depend on this emergency response. First responders, the public, the government, and the medical community must all work together on this.

The potential of merging artificial intelligence (AI) with life-saving programs is enormous. It has the capacity to evaluate enormous amounts of data and produce accurate projections, which has the potential to save innumerable lives in a variety of disciplines. Healthcare also uses data from clinical trials, medical records, and health monitors to spot trends and foresee possible health problems. Medical personnel can save lives by using this knowledge to early.

This capacity enables medical professionals to spot problems early and take swift action to halt the spread of illnesses before they get worse is proving to be quite helpful in emergency situations by offering quick analysis and prompt response to save lives. Systems use data from sensors, cameras, microphones, and other sources to identify and forecast possible hazards.

Protecting life extends beyond preventing harm, and efforts to reduce death, injury, and the broader social, economic, and emotional costs associated with key to achieving this goal by

tool learning and predictive analytics so that AI can not only help but identify dangerous internal emergency situations. Guides emergency management in Good Provides decision support for first responders, so rescue efforts are more effective. Finally, integrating into rescue efforts is not considered an immediate health problem.

It analyze traffic, identify facilitate proactive traffic management. By combining smart sensors and cameras, is able to detect driving behavior, driving ability, or parking problems in real time, enabling transportation faster This approach to road safety not only prevents accidents and accidents but the overall efficiency of the journey .

2. Classification Algorithm

Identify innovations designed to enhance safety and save lives by combining detection and accident recognition Artificial Intelligence (AI) This advanced approach aims to identify and classify minor and major accidents, in time in person, for quick and effective response to interventions From video analysis, to data management. Using AI techniques and advanced [2] technologies, the system not only helps prevent accidents but also facilitates quick decision-making through seamless

integration with the Management Information System (MIS).

The schematic “Fig. 1”, only when system maintenance has begun, including loading video images. If no damage is detected, the system continues monitoring. However, if an error is detected, the system continues to extract relevant features from the video data.

When a major crash is confirmed, the system posts and creates a 5-10 second video of the crash. This video clip is then [3] sent to the OIC (Officer in Charge) for verification. When confirms a serious accident, the system notifies nearby authorities such as police, cranes and ambulances for immediate response. The system also has a feature for minor accidents or disasters, where the system can simply notify the police or analyze the video.

In addition, the system incorporates security measures for data access, such as login and password controls. The flow ends with the appropriate action to be taken based on the circumstances of the accident and the system ending its operational day.

3. Technical Details of the SAI

The program is a new way that utilizes the capacity of artificial intelligence & cutting-edge computer audience systems to completely

change the way accidents get detected as well as reply to emergencies.

The employs at the core of the newest deep algorithms learning that used the CNNs for extraction [4] of spatial features & RNNs for working with the time series. Meant by complementary instruments, the performing processes could promptly or near-run time deal with videogame pictures or interpret them.

Installed on highways, especially in remote areas, AI-enabled CCTV cameras act as the eyes and ears of the system, constantly monitoring traffic. When accidents are detected, the system captures footage types that are urgent and lead directly to the nearest police patrol buildings which is of utmost importance. This prompt action prevents delayed accident reports, allowing emergency responders to accurately assess the situation and provide essential services such as medical assistance, firefighting and relief a destroyed, to the exact location without delay.

The system uses advanced machine learning to accurately detect accidents and facilitate faster emergency response. At the core of this framework are robust data and model preparation techniques. The system relies on accurate video images, which have been

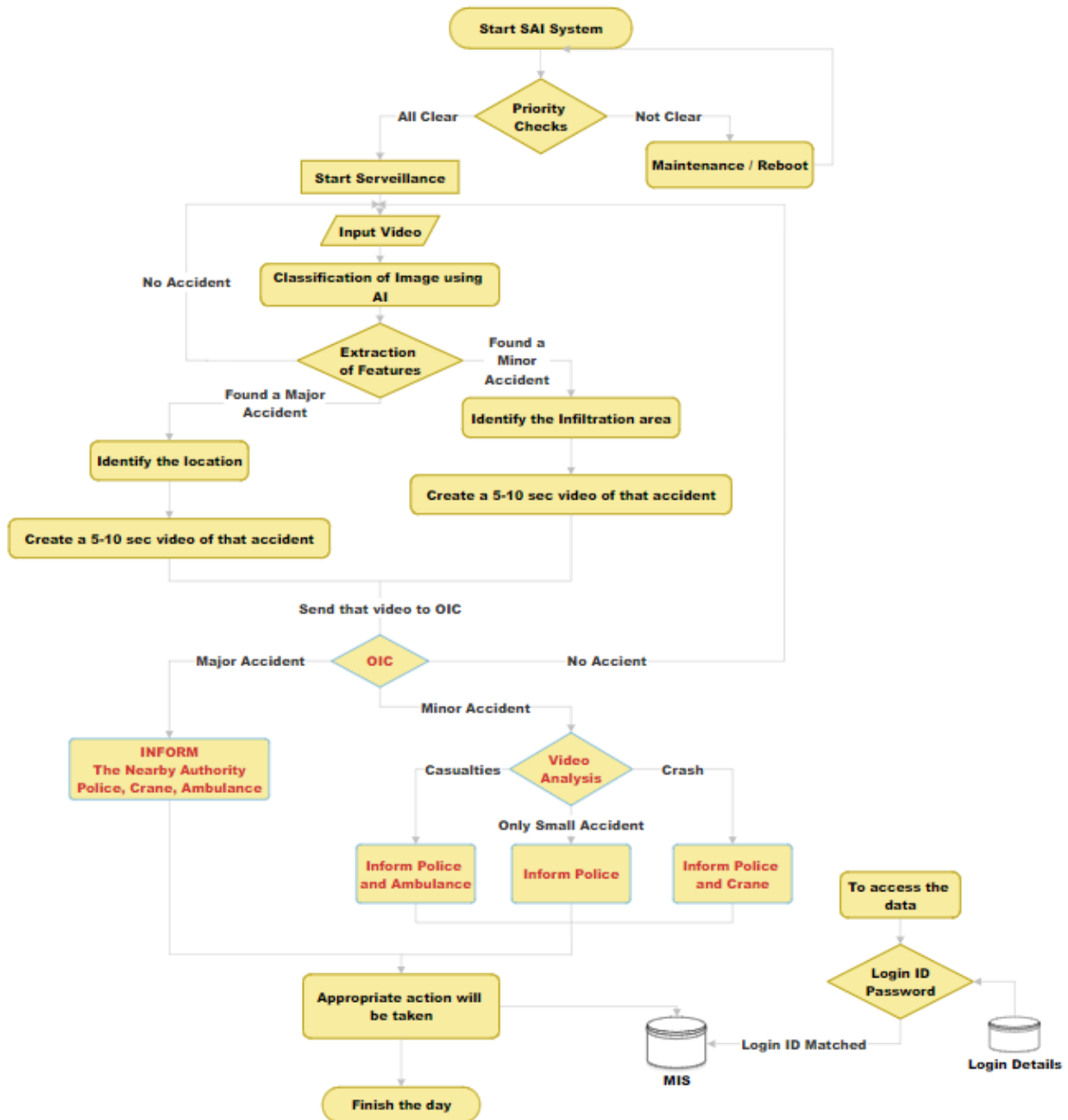


Fig. 1. SAI System Process Flowchart for Accident Detection and Emergency Response

The data preparation phase involves appropriate cleaning and preprocessing to address missing values, outliers and errors from data sources. Normalization and standardization techniques are used to ensure that the data is compatible with machine learning algorithms. Feature engineering plays an important role in the selection and modification of the most appropriate features from the video data, enabling the model to capture more accurately the complex patterns and characteristics associated with accident scenarios. To efficiently handle the sequential nature of video data, the framework uses the powerful combination of Convolutional Neural Networks (CNNs) are validated in spatial features extracted from individual video images, while Recurrent Neural Networks (RNNs) calls [5] various approach, adept at modeling dependencies and capturing patterns that unfold over time, enables the system to accurately classify and analyze video

sequences, and provide reliability is seen as a fall.

4. Accident Recognition

A. Vehicle Counting and Traffic Flow Analysis It represents to be footage from a traffic camera or surveillance video capturing a multi-vehicle accident or collision on a highway or major road “Fig. 2”. The image shows multiple vehicles are outlined or bounded by blue rectangular boxes, likely from an object detection or tracking system used in traffic monitoring. The scene depicts a situation, with vehicles positioned at various angles, suggesting they impacted each other at high speeds. The surrounding area shows the road, barriers and appears to be an exit or interchange [6] ramp labeled "Venecia". Overall, the image represents a serious traffic incident captured by a camera system designed to monitor and analyze vehicle movements and potential collisions on major transportation routes.



Fig. 2. Counts the vehicle

B. Vehicle Capture and Surveillance

The SAI system integrates with well-placed CCTV cameras, enabling traffic capture and surveillance. Enhanced with recognition algorithms, these [7] high-definition cameras are capable of accurately tracking the movement of vehicles, recording important information such as license numbers and vehicle models this application in criminal investigations The main benefits are to enable law enforcement agencies to identify suspects and track their movements, as well as to monitor traffic and identify potential incidents in the roads.

In “Fig. 3”, City authorities can obtain precious insights by analyzing the real-time data gathered by the cameras. That information might significantly assist city planners and managers in determining road layouts, intervals between traffic lights, as well as scheduling public transportation. That might have significant implications [8] on how we develop cities to be more sustainable and better communities to live in for people. Moreover, the system can recognize suspicious conduct like unauthorized parking or the use of the vehicle without the driver, leading to violations of traffic rules.



Fig. 3. Catch Accident

C. Accident Recognition and Analysis

The SAI System can recognize and analyze accidents while they are occurring as a

fundamental feature. The combination of deep learning vision algorithms and machine learning models makes the system capable of

detecting and classifying accident situations based on video images from monitors and cameras in highway locations. This feature enables the system to rapidly determine the source of the accident, which may be driving error, road state, and others, as well as [9] aid

in identifying the individuals involved. The images obtained on the incident activities are proof of insurance information and can use to enforce accident-mending zones and reduce traffic blockades.

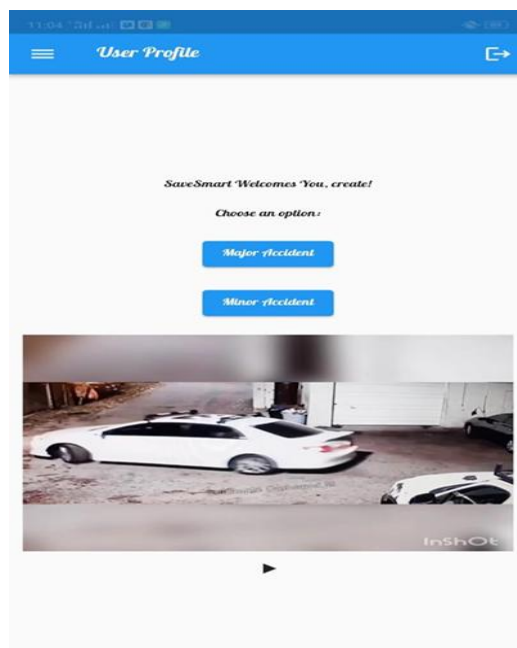


Fig. 4. Live stream

By combining this robust vehicle, background and crash detection ability to improve traffic management and help emergency responders respond faster than this new scheme illustrates the power of AI and computer vision technology to solve real-world problems and save lives in life-or-death situations.

The SAI System is not just an accident analyzer. It provides new methods in safety that change the conventional vision of road safety. This

system is a proactive safety that allows for monitoring the driving and road conditions at any given time so that the predicting factors can be fixed before they cause an accident. It is achieved using predictive analysis and smart algorithms.

Once the system realizes a potential risk ahead “Fig. 4”, it sends alerts to drivers, control centers, local authorities, and emergency services. This enables [10] the mitigation of

risks before accidents occur. Investing in a proactive approach is investing in saving the lives of the people and enhancing safety and accountability on our roads.

Conclusion

It is impossible to overestimate the importance of saving lives. Be it first aid, giving blood, promoting emergency response units, or campaigning to protect the public, anything done to save a life could help. Over the years, we have witnessed the great contribution that several technological inventions and improved solutions have played in improving existing emergency response units, medical facilities and disaster management systems. Regardless, it is still important to make sure that everyone, especially powerless and vulnerable people, could access these resources.

Continued investment in exploration and development is essential to identify new and effective ways to save lives in the future. This includes perfecting response times, enhancing exigency care or introducing new technologies and medical interventions. In addition, it's important to educate the public about the significance of survival and promote a culture of safety and preparedness. Governments and other associations also play an important part in this trouble by furnishing acceptable backing,

training and coffers to support exigency response and disaster operation programs.

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Accepted on Jan 27, 2025

Received on March 05, 2025

Published on April 01, 2025

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