**Evolution of traffic detection system:**

Traffic violation has been one of the major problem since the development of roads and vehicles. On average 3,287 people are killed every day in road accidents. Different remedies have been made through the period. Due to advancement of technologies and increase of population the problem doesn’t seem to be declining. In cities, where the number of vehicles continuously increases faster than the available traffic infrastructure to support them, congestion is a difficult issue to deal with and it becomes even worse in case of car accidents.

1. **Latest status of traffic violation detection system:**

The invention of vehicles date many years ago but the first car brought to Nepal was in 1958 BS. Traffic control system was formulated in 2007 BS. The first traffic light was implemented in 2023 BS in Kathmandu. Traffic lights weren’t that useful back then since there weren’t many vehicles or we could say we were way ahead of our time. In today’s scenario, traffic lights are not enough in Kathmandu. The latest development in traffic control system is the use of RFID systems. RFID systems overcomes the drawbacks of problems related to image processing. Radio-Frequency Identification (**RFID**) is the use of radio waves to read and capture information stored on a tag attached to an object. Although traffic violation has been one of the major problem all over the world, very few countries have taken the step towards smart traffic system. For example, Dubai have implemented around 15,000 cameras which is constantly monitored by Traffic police officers but detection is still done by officers themselves. The people who violate the rules are fined digitally especially in Dubai. It is very rare to find these new detection system. Speed detection system have been implemented in most of the developed countries. Even in Nepal, every now and then traffic comes for speed detection. We have CCTV control rooms for traffic management.

The system we are about to use is called “Traffic Violation Detection System” using image processing algorithm. We are planning to implement HD CCTV cameras as well as sensors at various places of roads (according to the study of road and traffic conditions). Our system should be able to scan the image of cars and its number plate. The violation will be recorded as a proof. The information about the driver will be present in the system so it will be very easy to fine the person.

1. **Benefits:**

We have over 1.025 billion vehicles today in the world. If an appropriate system is implemented to manage these vehicles, road accidents will be drastically reduced. It will help all the traffic officers and volunteers who work extremely hard to control the traffic. These following points will help us to show some benefits of traffic management system.

1. Improving traffic safety:

Over speeding, inappropriate changing of lanes, heavy traffic can lead to road accidents; traffic violation detection system will help with all of these. Our system can detect the vehicle who violated the rule and fine the necessary charge.

1. Reduce in infrastructure damage:

Road accidents not only lead to damage of life but also destroy our road structures. It also hampers the decoration of the road. If we implement our system then we can reduce the expenditure on road repair, allowing it to be allocated somewhere.

1. Traffic control:

We can clearly distinguish that today’s traffic system will not be able to huge mass of vehicles. Mostly people try to escape from the situation and traffic officers couldn’t care less. It’s like catching fish in the sea. There are so many of them that if we catch like thousands then other hundreds still run away. So a system is needed in order to keep everyone inside the rule, not letting even one to escape.

1. Improved journey times:

Most of the people violate traffic rules so that they can reach to the destination as fast as possible but unknowingly they are creating mesh and disturbing everybody on the road. Our system will make the road traffic condition better and everybody will reach to their destination in time.

1. Prevents road accidents:

People claim accidents are unfortunate events but most of the accidents are due to failure of people discipline on the road. There are many causes behind the accidents. Lack of experience, over confidence, over crowded roads, are the cause of accidents.

1. Serviceable help for traffic volunteers:

In the context of developing countries where government doesn’t invest required amount of money for road development, traffic controllers play huge role. We can see their hard work but it seems insufficient and it turns sometimes violent. Increment in vehicles every day make their traffic controlling task burdensome so let the system take all the stress and traffic officers and use their time someplace else.