Intelligent traffic Control System

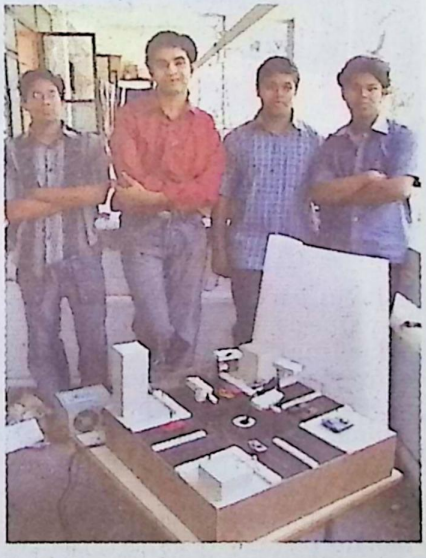
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NOWADAYS we experience traffic jam on roads almost everywhere, all the time. It is horrible to be victim to a traffic jam. In the existing traffic system of Bangladesh, the traffic signals are repeated at certain time intervals, without taking into consideration the traffic load in the roads. It works at a constant time interval irrespective of the crowd density at any given time. So it is a very common that a nearly empty road is enjoying the green signal while a more congested road is stuck in the red signal.

We implemented a new system called an "Intelligent Traffic Control System". We have tried to minimize traffic jams by assigning a predefined time slot to each of the roads according to their respective crowd densities. To measure the crowd density of the road, we took images of the roads and then analyzed the images to estimate crowd densities for each road. Sophisticated image processing algorithms have been used to make this approximation as accurate as possible. Then, according to these measurements, time slots are distributed among the roads. In this context, we call our system "Intelligent".

The main motivation behind this project lies in the word *Intelligent*. In the conventional traffic control systems, the roads are assigned equal time durations irrespective of the crowd densities. But in our system we introduced intelligence through image analysis and thus divided the time slot according to traffic densities.



This system is also distributed. There is a central system (server) for a city or a large area. This central server is used to get data about the traffic condition of the corresponding road over the last few days at the same time of day. So we do not depend on the pictures of just one instant, but are also taking considering previous records.

The server is also used to get information about the road conditions. We can know the current situation of any road at any time, such as, whether a road is blocked for some construction work. This system takes care of these situations and gives necessary traffic signals to the appropriate roads, such as not allowing any cars to take that direction.

We also noticed that, sometimes even though a signal is green, there is no way for the traffic to go because the entry points are already heavily congested. This situation only increases traffic chaos. Our system also takes care of this situation. The part of the system located in the junctions gains data about other parts of the city and can take proper steps to avoid these situations.

We also provide road-wise priority facility for emergency vehicles such as ambulance, fire brigade trucks, VIP cars etc. There are provisions for road blocking in case of construction or public meetings. All aspects of the project have made it intelligent in the true sense of the world.

Another aspect can be added to the system. Provision for detecting traffic rule violations can be introduced as well.

Considering the problems posed by the current traffic control system in our country, we can hope that our "Intelligent traffic control system" can easily alleviate the problems stated above.

Problem Statement:

The main task of this traffic system is to maintain the best possible flow of vehicles in a traffic junction. To do this we have to consider the following aspects-

ØIn the traffic signals there are many roads. We have to let the sides go in such a way so that no collision occurs. Here we have designed our program in such a way so that maximum roads can be opened at a time while avoiding collision.

ØIn the signal there must be allowance for pedestrians. Here we have pedestrian roads open only when there is no traffic allowed on either lane so that no accident can take place.

Ø In case of roadblocks, we have considered the incoming side as being blocked.