

Mera shahar, mera sapna

Smart Solutions for traffic problems

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1. Suggest one smart solution and/or innovative technology for conveniently dealing with traffic congestion outside your home.

In the next 5 years, majority of cars in India will become smart cars. Already in June 2015, Mahindra announced that it's integrating Android Auto in its XUV 500 and Scorpio cars. Soon majority of private cars will have Android Auto and this will increase the ability of Google Maps to provide us with accurate traffic conditions and predictions.

It is possible to use this data to give drivers on the road critical instructions, like what speed and lane to maintain. And all this can be done without endangering life or requiring every vehicle on the road to have Android Auto installed. That's where our innovation comes in – Solar-powered road panels.

Using solar powered road panels, city roads are converted into smart roads. The technology combines a transparent driving surface with underlying solar cells, electronics and sensors to act as a solar array with programmable capability. It is being currently developed by an American company called Solar Roadways Inc (<http://www.solarroadways.com>).

These pressure-sensitive smart solar panels placed on the road have LED integrated within so that they can together display (programmable) text that is easily readable by all drivers on the road. What's more, the solar-powered panels power themselves on clean energy.

Based on the data from Google Maps and the panels themselves, drivers can be instructed on necessary actions to be taken to avoid traffic congestion. It will also help clear lanes for ambulances to pass through.

2. One motorcar carries 4 people comfortably; one public bus carries 40 people comfortably. How can a smart city balance the needs of the car and the bus?

The objective of commuters of motorcars and public buses is to reach their destination as early as possible. However when both these vehicles share the same road, then often the result is traffic congestion. This defeats the purpose of commuters.

The solution to this is to give a separate lane dedicated to public buses, i.e. creating a Bus Rapid Transit (BRTS) or Busway. This ensures that private and public vehicles reach their destination in optimal time without interfering with each other.

Two lanes are created in the center of the road for public buses to ply on either direction. Bus stops are placed in between these lanes as per requirement. The adjacent roads to these lanes are used by motorcars. The two vehicles only share roads during roundabouts and turnings, but thereafter stay limited to their own assigned roads.

3. How can travelling by bus in your city become safer and more comfortable with the use of innovative technologies and smart solutions?

Unpredictability and overcrowding are the biggest issues associated with public buses.

Commuters don't know what time the bus will actually arrive at their bus stop. While there are bus timetables, traffic situations usually lead buses to be delayed. Furthermore, the inability for commuters to know whether an expected bus is delayed or cancelled altogether causes safety issues, especially at night.

The solution to this is to install GPS in all buses and create a real-time feed of their location as they ply on their route. The commuters are able to track the location of buses on their interested route via a smartphone app.

Commuters launch the app and choose a bus route. This will lead to real-time locations of buses on that route being plotted on Google Maps. The app will also be able to predict at what time the bus will reach any chosen bus stop.

This system can be easily built on JavaScript with a relevant API to get the data from the buses.

This system can be further enhanced to sync with the bus conductor's ticketing machine information to display how many vacant seats are there in a bus. In this way, commuters will be able to plan which bus to board. This will ensure that buses are not overloaded and thus result in reduced breakdowns.

With such a system in place, citizens will confidently choose buses as the preferred mode of transport.