

Project Design Phase-I Solution Architecture

Date	8 October 2022
Team ID	PNT2022TMID11855
Project Name	Signs with Smart Connectivity for Better Road Safety
Maximum Marks	4 Marks

SOLUTION ARCHITECTURE:

1. Best tech solution to solve existing business problems :-

- The automobile has been around for little more than a century and during this period, it has gone through an extraordinary evolution, driven by constant technological innovations. However, other aspects of transportation, extravehicular safety, signage, and traffic control infrastructure have seen a much slower pace of development.

Some of the technology on and around roads has not seen the level of innovation demonstrated by the automobile itself. Examples of such technology include:

- Road Marks (introduced 1910s)
- Traffic Lights (1910-1920s)
- Traffic Signs (1910s)
- Cat's Eyes and Bott's Dots (1930s)

Reinventing the Traffic Light:-

- Automated three colour traffic lights have been around since the 1920s. They are usually round in shape, since incandescent round bulbs were used at their centre.

- Although costlier in the short run, LED traffic lights have several advantages:
 - More energy efficient (up to 98%).
 - Low power consumption allows for battery backup in case of power outage. This improves safety and traffic flow during power outages.
 - Very long life (5 to 10 years) as opposed to 1 year for incandescent. Maintenance cost savings.
 - They do not just burn out, they slowly lose intensity. No down time due to burnt bulbs.
- a. **Structure, Characteristics, Behaviour, and other aspects of the software to project :-**

Structure and characteristics: In present Systems the road signs and the speed limits are Static. But the road signs can be changed in some cases. We can consider some cases when there are some road diversions due to heavy traffic or due to accidents then we can change the road signs accordingly if they are digitalized. This project proposes a system which has digital sign boards on which the signs can be changed dynamically. If there is rainfall then the roads will be slippery and the speed limit would be decreased. There is a web app through which you can enter the data of the road diversions, accident prone areas and the information sign boards can be entered through web app. This data is retrieved and displayed on the sign boards accordingly.

- b. **Advantages after impletation:**-Many governments and transport authorities understand the value of smart road technologies. However, developing smart city infrastructure at scale can be costly and complex. Leaders can break down smart

road projects into phases, starting with low-investment, narrow-scale initiatives that can provide initial value, setting the stage for high-investment and large-scale efforts. In the early days of motor-powered mobility, cars were available, but there was no suitable road infrastructure; the first private cars were hardly more effective than horse-driven wagons. Gradually, authorities recognized that only a major investment in road infrastructure would help the population reap the benefits of new transport technology.

Similarly, today's governments and urban transport authorities are beginning to appreciate the importance of smart roads as an essential platform for mobility innovation. Smart roads will power smarter cars, empower drivers, and provide governments with unprecedented visibility and control over the living fabric of motor-based traffic.

SOLUTION ARCHITECTURE DIAGRAM:



