PROJECT DESIGN PHASE-1

PROPOSED SOLUTION TEMPLATE

DATE	17.10.2022
TEAM ID	**PNT2022TMID53946**
PROJECT NAME	**Signs with smart connectivity for better road safety.**
MAXIMUM MARKS	2 marks

Proposed solution template:

Project team shall fill the following information in proposed solution template.

S.No.	Parameter	Description
1.	**Problem statement(problem to be solved)**	In present system the road signs and speed limits are static. In some cases, road signs can be changed according to the nature. We can consider some cases when there are few road diversions according the heavy traffic or due to accident and other factors. We can change road signs accordingly if they are digitalized, hence there is a requirement for digital sign boards in which the signs can be changed dynamically.
2.	**Ideas/solution description**	The weather and temperature details are obtained from the Open Weather Map API. Using these details, the speed limit will be updated automatically in accordance with the weather conditions. Also, the details regarding road accidents and traffic congestion faced on the particular road are obtained. Based on this, the traffic is diverted followed by a change in map path and the traffic is cleared. So in the traffic sign board, some buttons will be placed which willbe used to make it generic; where each button will be given a functionality such as changing the warning signs, which are predefined and separate signs will be present for both school and hospital zones. By activating this button, either through the web application or the physical buttons, sign

		of the board can be changed accordingly, and the speed limit will also be set depending upon the zones. Also, the pedestrians are given an option to change the traffic signs if they want to cross the road. If the pedestrian presses the button that is present on the post at the end of the road, then the traffic will be analyzed immediately. Accordingly, the sign of the traffic signal will be changed. This inturn reduces the frequent changing of the traffic signs even if the pedestrians are not present.
3.	**Novelty/Uniqueness**	Generic Sign board for all applications that uses both buttons and web service for updation.
4.	**Social impact/customer satisfaction**	Diversion reasons will be displayed. If there is no traffic, pedestrians can cross the street without waiting. Customer can reach the destination before the expected time.
5.	**Business Model (Revenue model)**	Since APIs are used to actively monitor the customer's environment, this project employs a business strategy in which revenue will be generated on the basis of the length of time in which the customers actively interact with the product. This product is aimed to be free of cost to the public, but the revenue will be generated by selling this product to the government at a low cost, so there will be less accidents and the public will be aware of the discrepancies or accidents in the particular road. The public will also gain all the information about the road, even if they are checking for an alternate path because of some mishaps that happen on the roads and these functionalities will increase the value of the product in the global market
6.	**Scalability of the solution**	In the future, if any update is required either on the hardware or software side, it can be easily implemented. The hardware components can be directly interfaced with the microcontroller and small modifications can be made in the programming of the existing product. In case of the software, the website application has to be updated with the additional functionality by creating a new section for the updated hardware. So this will not affect the existing functionality of the product and new functionality can be easily integrated. In addition, a separate

		circuit will be kept along with the hardware to detect any problem which informs the web application.