

Project Design Phase-I

Date	30 September 2022
Team ID	PNT2022TMID25269
Project Name	Signs with Smart Connectivity for Better Road Safety

Proposed Solution

S. No.	Parameter	Description
1.	Problem Statement	<p>Smart connected sign boards are used to replace static signboards. These intelligent connected sign boards update automatically and obtain the speed restrictions from a web application utilizing weather API. The speed may increase or decrease in response to changes in the weather. The display of the diversion signs depends on the flow of traffic and potential fatalities. The appropriate guide, warning, and service signs are also posted at hospitals and restaurants. With the use of buttons, many operating modes can be chosen.</p>
2.	Idea description	<p>The OpenWeatherMap API is used to receive the weather and temperature information. The speed limit will be automatically changed based on these information and the current weather. Additionally, information is gathered on any incidents and traffic jams that may have occurred on the specific road. On the basis of this, the traffic is diverted, the map's path is changed, and the traffic is then cleared. In order to make the traffic sign board more generic, additional buttons will be included. Each button will have a specific function, such as changing the warning signs, which are predefined and appear separately for the school and hospital zones.</p>

S.No.	Parameter	Description
		<p>By pressing this button—either physically or through a web application—the board's sign can be adjusted appropriately, and the speed limit will be established in accordance with the zones.</p> <p>Additionally, if a pedestrian wants to cross the road, they have the option of changing the traffic signs. The traffic will be promptly assessed if the pedestrian presses the button that is located on the post at the end of the road. As a result, the traffic signal's sign will change. In consequence, even without pedestrians, this lessens the frequency with which traffic signs are changed.</p>
3.	Novelty	<p>Generic Visual Message Board for all Programs that Update through Web Service and Buttons</p> <p>Pedestrians have the option to request a sign alteration for the crosswalk signal.</p>
4.	Customer Satisfaction	<p>The purpose of the diversion will be shown</p> <p>Pedestrians do not need to wait to cross the street if there is no traffic.</p> <p>Customer can arrive at the desired location earlier than anticipated</p>
5.	Business Model	<p>This project uses a business approach where income is earned based on how long users actively interact with the product, since APIs are used to actively monitor the customer's environment.</p> <p>This product is intended to be provided without charge to the general public, but cash will be created by selling it to the government for a reasonable price, reducing accidents and increasing public awareness of errors or accidents on a certain road. Even if they are looking for an alternative route due to any accidents that occur on the roadways, the general people will still learn everything there is to know about the road.</p>

S.No.	Parameter	Description
6.	Scalability of the Solution	<p>Future updates that are needed can be quickly applied, whether they are on the hardware or software side. The programming of the present product can be slightly modified and the hardware components can be directly interfaced with the microcontroller. The website application must be updated with the new capabilities in the case of software by adding a new section for the updated hardware. As a result, the product's current functionality won't be impacted, and new functionality can be added with ease. Additionally, a secondary circuit will be maintained in addition to the hardware to detect any issues and alert the online application. A notification will also be forwarded to the product service division.</p>