

**Project Design Phase-II**  
**Solution Requirements (Functional & Non-functional)**

Date	13 October 2022
Team ID	PNT2022TMID42239
Project Name	Project – Signs with smart connectivity for better road safety
Maximum Marks	4 Marks

**Functional Requirements:**

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	<b>User Guidance</b>	<ul style="list-style-type: none"> <li>These smart sign boards will provide <b>road safety guidance</b>.</li> <li>Speed limitations will be recommended based on the data acquired from the <b>open weather map</b> API which includes following <b>subtasks</b> :               <ol style="list-style-type: none"> <li>Weather data will be continuously received using communication protocols like HTTP and MQTT.</li> <li>Based on the weather condition (eg.heavy rainfall,more fog)<b>speed recommendation</b> will be provided.</li> </ol> </li> <li>During Traffic and fatal situation <b>diversion symbols</b> are displayed which includes the following subtasks:               <ol style="list-style-type: none"> <li>Information will be gathered from the <b>road safety control</b>.</li> <li>Based on that <b>diversion symbols</b> are provided.</li> </ol> </li> <li>Recommendation regarding the prohibition of use of <b>sound horn</b> near <b>Hospitals</b> and speed limitation while crossing <b>school</b> area using GIS.</li> </ul>
FR-2	<b>User visibility</b>	<ul style="list-style-type: none"> <li>Small <b>video description</b> will be provided for quick understanding .</li> <li>Background colours will change based on daytime and night time .(brightness will also be adjusted)</li> </ul>
FR-3	<b>Continuous support</b>	<ul style="list-style-type: none"> <li>Continuous support will be provided through <b>regular updation</b> using <b>IBM CLOUD SERVICE</b>.</li> <li>Since it is regarding road safety uninterrupted power supply and <b>internet connection</b> will be made.</li> </ul>
FR-4	<b>Product installation</b>	<ul style="list-style-type: none"> <li>The sign board will be installed on the better view position for user convenience .</li> </ul>

### Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	<b>Usability</b>	In comparison to normal sign boards the usability of smart connected sign boards are <b>very simple</b> which provides clear and defined data.
NFR-2	<b>Security</b>	Data displayed is under control and cannot be edited or controlled by any others.
NFR-3	<b>Reliability</b>	Reliably exact data will be gathered and provided so the user can follow the guidance completely.
NFR-4	<b>Performance</b>	The performance will be more <b>accurate</b> , on timing, more specific to the relevant situation, very fast and continuous updation will also be made.
NFR-5	<b>Availability</b>	This product designed <b>24 hrs availability</b> , that the developer <b>can access anywhere</b> and it is all time during the travel.
NFR-6	<b>Scalability</b>	More changes can be made in future with many features and more sensors can be interfaced and the gathering information will sent to the control panel.