ProjectDesignPhase-I

ProposedSolution

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| Date | 19 SEPTEMBER 2022 |
| TeamID | PNT2022TMID49188 |
| IBM-Project-ID | IBM-Project-28736-1660115651 |
| ProjectName | SignswithSmartConnectivityforBetterroadSafety |

ProposedSolutionTemplate

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| **S.No.** | **Parameter** | **Description** |
| 1. | ProblemStatement | Toreplacethestaticsignboards,smartconnectedsignboardsareused.  Thesesmartconnectedsignboardsgetthespeedlimitationsfromawebapp using weatherAPIand update automatically.  Basedonthe weatherchanges thespeed mayincreaseordecrease  Basedonthetrafficandfatalsituationsthediversionsignsaredisplayed.  Guide(Schools),WarningandService(Hospitals,Restaurant)signsarealsodisplayed accordingly.  Differentmodesofoperationscanbeselectedwiththehelpofbuttons. |
| 2. | Ideadescription | TheweatherandtemperaturedetailsareobtainedfromtheOpenWeatherMap API. Using these details, the speed limit will beupdatedautomaticallyinaccordancewiththeweatherconditions.Also, the details regarding any accidents and traffic congestion facedontheparticularroadareobtained.Basedonthis,thetrafficisdiverted followed by a change in map path and the traffic is cleared.Sointhetrafficsignboard,somebuttonswillbeplacedwhichwillbeusedtomakeitgeneric;whereeachbuttonwillbegivenafunctionality such as changing the warningsigns,whichare  predefinedandseparatesignswillbepresentforbothschooland |

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|  |  | hospitalzones.Byactivatingthisbutton,eitherthroughthewebapplication or the physical buttons, sign of the board can be changedaccordingly, and the speed limit will also be set depending upon thezones. Also, the pedestrians are given an option to change the trafficsigns if they want to cross theroad. If the pedestrian presses thebutton that is present on the post at the end of the road, then the trafficwill be analyzed immediately. Accordingly, the sign of thetrafficsignal will be changed. This inturn reduces the frequent changing ofthetraffic signs even ifthepedestriansare notpresent. |
| 3. | Novelty | GenericSignboardforallapplications thatusesbothbuttonsandwebservicefor updation  Pedestriansaregiventheaccesstorequestthesignchangeofthesignalto cross the road |
| 4. | CustomerSatisfaction | Diversionreasonswillbedisplayed  Ifthereisnotraffic,pedestrianscan crossthestreetwithoutwaiting.Customercan reachthe destinationbeforethe expected time |
| 5. | BusinessModel | Since APIs are used to actively monitor the customer's environment,this project employs a business strategy in which revenue will begenerated on the basis of the length of time in which the customersactivelyinteract with the product.  This product is aimed to be free of cost to the public, but the revenuewill be generated by selling this product to the government at a lowcost, so there will be less accidents and the public will be aware of thediscrepancies or accidents in the particular road. The public will alsogain all the information about the road, even if they are checking foran alternate path because of some mishaps that happen on the roadsand these functionalities will increase the value of the product in theglobalmarket. |

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| 6. | Scalability of theSolution | Inthefuture,ifanyupdateisrequiredeitheronthehardwareor  software side, it can be easily implemented. The hardware |
| componentscanbedirectlyinterfacedwiththemicrocontrollerand |
| smallmodifications canbemadein theprogrammingoftheexisting |
| product.Incaseofthesoftware,thewebsiteapplicationhastobe |
| updatedwiththeadditionalfunctionalityby creatinganewsectionfor |
| theupdatedhardware.Sothiswillnotaffectthe existingfunctionality |
| oftheproductandnewfunctionalitycanbeeasilyintegrated.In |
| addition,aseparatecircuitwillbekeptalongwiththehardwareto |
| detectanyproblemwhichinformsthewebapplication.Alsoa |
| notificationwillbesenttotheproductservicedepartment. |