|  |  |
| --- | --- |
| Date | 02 October 2022 |
| Team ID | PNT2022TMID04128 |
| Project Name | Emerging methods for early detection of forest fires. |
| Team Leader | Tejaswini K.G |
| Team Mates | Suchitra.V,Vallimayila.R,Swetha.S |
| Maximum Marks | 2 Marks |

**Project Design Phase I Proposed Solution**

**Proposed Solution Template:**

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

|  |  |  |
| --- | --- | --- |
| **S.No.** | **Parameter** | **Description** |
| 1. | **Problem Statement (Problem to be solved)** | Wildfires can have immediate and long-term effects on the quality of rivers, lakes, and streams. The most noticeable impact of wildfires is stormwater runoff*.*  Depending on the temperature and time of year a wildfire occurs, vegetation can be significantly impacted.  Plants on the forest floor or smaller trees are often destroyed by wildfires, while larger trees can survive as long as the fire does not spread into the tree canopy.  The flames from these fires destroy the food source and homes of many animals, threatening their survival. |
| 2. | **Idea / Solution description** | Forest fires pose a serious threat to the environment because they harm the economy and the ecosystem. In order to fight against these disasters, it is necessary to adopt a comprehensive, multifaceted approach that enables continuous situational awareness and instant responsiveness. In this, we proposed a new approach for fire detection, in which modern technologies are used. In particular, we proposed a platform for Artificial Intelligence. The computer vision methods for recognition and detection of smoke and fire, are based on still images or the video input from the cameras. Deep learning method “convolution neural network” can be used for finding the amount of fire. This will enable the video surveillance systems in the forest to handle more complex situations in the real world. The accuracy is based on the algorithm which we are going to use and the datasets and splitting them into train sets and test sets. |
| 3. | **Novelty / Uniqueness** | Due to the complex background and large Wildfire room image, sure wildfires pose difficulties in the identification process. Applying **convolutional neural network (CNN)**technology to image recognition can reduce visual impairment and randomness to a large extent in the feature extraction process and theoretically extract deeper features that could greatly improve the accuracy of flame image recognition. |

|  |  |  |
| --- | --- | --- |
| 4. | **Social Impact / Customer**  **Satisfaction** | A fire-detection system can reduce the emission of harmful combustion products and greenhouse gases by detecting fires fast and precisely (i.e., without sacrificing speed or setting off false alarms) and sending out early warning notifications. Systems for detection and alarm play a crucial role in your overall fire protection strategy. Early fire detection helps to conserve wildlife, limit ecological damage, and stop the loss of flora and fauna. |
| 5. | **Business Model (Revenue Model)** | Firefighters and the Forest Service can use this concept to help avoid disasters. India's annual losses from forest fires have been conservatively calculated at US$ 107 million (Rs 440 crores). We utilize a CNN model based on artificial intelligence to combat this. Subscription fees are CNN's main source of income. 50 percent of its overall revenue comes from subscription fees, and the remaining 50 percent comes from advertising and other revenue sources. CNN's primary source of income is through subscription and advertising payments. |
| 6. | **Scalability of the Solution** | Each year, fires consume millions of hectares of forest. These fires spread quickly and consume a lot of space, emitting more carbon monoxide than cars. The expense of battling a fire can be drastically reduced by keeping an eye on potential danger areas and spotting fires early. This can also greatly limit the amount of potential damage. |