**Project Design Phase-3**

**Proposed Solution**

|  |  |
| --- | --- |
| Date | 23rd October 2023 |
| Team ID | Team - 592719 |
| Project Name | Project - Jungle Detectives: AI-Powered Image Classification of Wild Big Cats |
| 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) | Forest rangers and Safari tourists often encounter wild big cats during their expeditions. Accurate identification of these species is crucial for both the safety of tourists and the conservation efforts of rangers. However, the current methods of identifying big cat species, particularly in the wild and diverse environments of natural habitats, are often error-prone, time-consuming and treacherous.  Rangers need a quick and reliable way to identify species to ensure the safety of tourists and to document wildlife for conservation purposes.  Similarly, tourists can have an immersive experience as currently they lack the knowledge and awareness about the species they encounter. |
| 2. | Idea / Solution description | The "Big Cat Identifier" is an advanced Web application leveraging the power of Machine Learning and Image Processing technology, specifically the ResNet50 deep learning model, to address the challenges faced by forest rangers and safari tourists in quickly and accurately identifying wild big cat species. Our user-friendly application provides an efficient and reliable solution for species recognition, enhancing both the safety of tourists and the conservation efforts of rangers. |
| 3. | Novelty / Uniqueness | Our Web-app utilizes the advanced **ResNet50** deep learning model, which ensures unparalleled accuracy in identifying big cat species. Its robust algorithms can discern subtle differences, making it reliable even in challenging natural environments.  Its **Offline functionality** in remote habitats where internet connectivity is often scarce stands out by operating seamlessly without an internet connection, ensuring usability in the most remote locations.  It also **Educates users** about the recognized animal. Tourists gain valuable insights into the identified species, including habitat, behaviour, and conservation status, enriching their wildlife experience and fostering a deeper connection with nature |
| 4. | Social Impact / Customer Satisfaction | The system **enhances safety** of both forest rangers and tourists. By implementing **tailored safety protocols** based on identified species, we ensure tourist's enriching wildlife experiences while minimizing potential risks in ecotourism and outdoor exploration.  Through the provided **educational insights**, tourists gain a deeper understanding of the wildlife they encounter. This fosters a sense of responsibility towards environment and wildlife conservation.  The data collected through the application aids scientists and researchers in understanding the world of big cats.  Customers, including forest rangers and safari tourists, experience high satisfaction due to our model’s precise and accurate identifications, instilling confidence in the users.  The application also has ability to operate offline, ensuring functionality in remote and off-grid locations. This feature allows users to rely on the system regardless of their expedition location.  Our user-friendly interface with easy navigation, straightforward image capture, and instant results contribute to better customer experience. |
| 5. | Business Model (Revenue Model) | Developing an advanced and user-friendly big cat identification system could significantly benefit both forest rangers and safari tourists. Here's how it could help in the business model:  To Integrate **Augmented Reality (AR)** or **Virtual Reality (VR)** features, allowing tourists to visualize and learn about big cats in their natural habitat. This immersive experience can be **monetized through in-app purchases** or premium access.  Offer a basic version of the app free, with limited features such as species identification. **Premium features** like in-depth animal profiles, offline access, and ad-free experience can be available through a **subscription model.**  **Collaborating with wildlife NGOs**, eco-tourism companies, and camera equipment manufacturers. These **partnerships** can provide funding in exchange for promotion within the app, sponsorships, or exclusive deals for app users. |
| 6. | Scalability of the Solution | **Camera Traps:** Implementing camera traps equipped with AI technology in strategic locations within natural habitats. These traps can capture images of big cats and automatically identify the species. This data can be sent to a central database accessible to rangers and conservationists.  **Drones:** Using drones with high-resolution cameras and AI capabilities to monitor wildlife from the air. Drones can cover large areas quickly, capturing images and videos of big cats for identification and conservation efforts. |