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| **Project Detail** | | | |
| **Title** | **THIRD EYE FOR THE BLIND** - An Innovative Wearable Technology for the Visually Impaired | |
| **Students Name and Roll No.** | * Namrata Diware 13 * Samiksha Agarwal 17 * Prathamesh Rokade 57 * Pravin Nandankar 58 * Vansh Kolte 62 | |
| **Area** | Wearable Technology, Assistive Devices, Healthcare | |
| **Specific Challenge of the society being addressed with the project** | The project addresses the challenges faced by visually impaired individuals in navigating their environments safely and independently. | |
| **Objective** | To develop a wearable device that assists blind and visually impaired individuals in detecting obstacles and navigating their surroundings with ease. | |
| **Project summary (within 500 words)** | The "Third Eye for the Blind" project aims to create an innovative wearable technology designed to improve the quality of life for visually impaired individuals. This device will incorporate sensors and haptic feedback mechanisms to alert the user of nearby obstacles, enabling them to navigate unfamiliar environments safely. By leveraging advanced technology such as ultrasonic sensors and machine learning algorithms, the device will provide real-time guidance and obstacle detection, allowing users to move with confidence. The project will explore the integration of this technology into a wearable form factor that is both discreet and user-friendly. Additionally, the project will focus on making the device affordable and accessible, with the potential for wide-scale adoption. | |
| **Key words** | Wearable Technology, Blindness, Assistive Device, Obstacle Detection, Navigation, Ultrasonic Sensors, Haptic Feedback | |
| **Review of proposed work** | A comprehensive review of existing assistive technologies for the blind will be conducted to identify gaps and opportunities for innovation. The review will focus on current wearable devices, their limitations, and potential areas for improvement. | |
| **Methodology** |  **Research and Analysis:** Study existing wearable technologies and their application for visually impaired users.   **Design and Development:** Develop a prototype incorporating sensors, haptic feedback, and machine learning.   **Testing and Iteration:** Conduct user trials with visually impaired individuals and refine the device based on feedback.   **Finalization:** Prepare the final design for production and scalability. | |
| **Work Plan to achieve the objective** | * Research and conceptual design. * Prototype development and initial testing. * Iterative improvements based on user feedback. * Final testing and preparation for production. | |
| **Expected Deliverables of the project** | * A functional prototype of the wearable device. * Detailed documentation of the design and development process. * User feedback and testing reports. * A plan for scaling up production and deployment. | |
| **Societal Aspect of Proposed Work** | The project directly addresses the need for improved mobility solutions for the visually impaired, offering them greater independence and safety. It has the potential to enhance the quality of life for millions of people worldwide. | |
| **Proposed Scientific Intervention to address the problem** | The project will utilize ultrasonic sensors to create a real-time obstacle detection system. The integration of haptic feedback will provide immediate and intuitive alerts to the user, enhancing their ability to navigate safely. | |
| **Beneficiary Population** | The primary beneficiaries are blind and visually impaired individuals who require assistance in navigating their surroundings. This includes people of all ages and in various environments, from urban areas to rural settings. | |
| 1. **Development of the Product and Transfer** | **Yes/No**  Yes | **Explain How (not more than 200 words)**  The project aims to develop a market-ready product that can be transferred to manufacturers for mass production. Collaboration with organizations supporting the blind community will be pursued to ensure the product reaches those in need. |
| 1. **Available Technology to be Validation and adaptation** | **Yes/No**  Yes | **Explain How (not more than 200 words)**  The project will adapt existing sensor technologies and haptic feedback mechanisms for the specific needs of visually impaired users. Validation will be conducted through rigorous testing and user feedback. |
| 1. **Technology and the knowledge dissemination among community** | **Yes/No**  Yes | **Explain How (not more than 200 words)**  Knowledge about the technology and its use will be disseminated through workshops, collaborations with NGOs, and online platforms dedicated to assistive technologies. |
| 1. **Adaptation of the technology by the society** | **Yes/No**  Yes | **Explain How (not more than 200 words)**  By making the device affordable and user-friendly, the technology is expected to be readily adopted by the visually impaired community. Support from relevant organizations will further facilitate widespread adoption |
| **Possibility of scaling up? (Yes/No)** | Yes, The project has strong potential for scaling up through partnerships with technology companies and NGOs. The design will be optimized for mass production, and a marketing strategy will be developed to reach a global audience. | |
| **Technology Readiness Level (TRL)** | The project is currently at TRL 3 (Experimental proof of concept), with plans to reach TRL 6 (Technology demonstrated in relevant environment) by the end of the project. | |