Initial Project Proposal Outline

Section	Report Section Details
1	**Suggested Title** Third eye
2	**Introduction and Objectives** Visually impaired individuals encounter numerous formidable obstacles in their daily lives. One of the most prominent challenges is their ability to discern and navigate their surroundings. Considering this issue, we introduce an initiative called "Third Eye." This ongoing project involves the development of specialised glasses integrated with state-of-the-art machine learning algorithms, enabling blind individuals to create real-time maps and recognise obstacles in their immediate vicinity. By harnessing the power of technology, Third Eye aims to enhance the mobility and overall mental and personal well-being of the visually impaired, ushering in a brighter future for those who rely on this innovative solution.
3	**Background** Individuals with visual impairments often grapple with perceiving objects in their immediate vicinity. Numerous projects have emerged with the noble objective of providing the visually impaired with a comprehensive understanding of their surroundings. These projects include innovative solutions such as multi-sensor vests, tongue electro-tactile devices, and Smart Canes. However, a standard limitation shared by these initiatives is their reliance on ultrasonic sensors to calculate distances between the visually impaired individual and obstacles. This approach falls short of enabling blind individuals to identify the nature of the objects surrounding them. In contrast, my project proposes a groundbreaking shift by harnessing LiDAR technology as a sensory "camera" to create detailed environmental maps. Through extensive research into neural networks and data transmission methods, the mapping data can be seamlessly conveyed directly to the brains of sightless individuals via specialised devices.

4	**Ethical Considerations** One of the key innovations of this project is simplifying the device by consolidating multiple functionalities into a compact and user-friendly pair of glasses. Developing a smaller form factor will help us significantly reduce the number of devices required compared to existing solutions, thus substantially contributing to reducing electrical waste in our environment. This paradigm-shifting approach represents a momentous leap forward in empowering individuals with visual impairments by offering them spatial awareness and the ability to discern and understand the world around them in a previously unattainable manner. Furthermore, our human-centred design emphasises collision avoidance, bolstering the safety of our users and ensuring that they can confidently navigate their surroundings. Lastly, our project places paramount importance on rigorous Risk Assessment and adherence to health and safety legislation, ensuring the seamless integration of our solution into the lives of blind individuals, ultimately enhancing their overall performance and quality of life.
5	**Proposed Technical Approach** To be updated after the Literature review
6	**Requirements** To be updated after the Literature review
7	**Expected Project Results** A compact and user-friendly pair of glasses capable of mapping the surrounding environment.
8	**Proposed timeline. This should be presented using a Gantt chart.**