E-Poster

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D4BLISS Digital for BLInd AutonomouS Skiing

Topic: Miscellaneous

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BACKGROUND

The D4BLISS (Digital for BLInd autonomiuS Skiing) project is an innovative initiative that aims to revolutionize the accessibility of skiing for blind and visually impaired people, guaranteeing them the possibility of practicing this sport autonomously and safely, without the need for a physical guide. The project's approach is based on the integration between advanced sensors and the most modern Artificial Intelligence (AI) technologies, exploiting high-performance hardware platforms such as Jetson and NVIDIA AI. The proposed system will be able to analyze the surrounding environment in real time, providing the athlete with immediate support through tactile and vocal feedback, so as to allow quick and precise decisions on the path to follow.

METHODS

The project is divided into different phases. The first phase will be dedicated to the detailed definition of the necessary technical specifications, identifying the most suitable hardware and software components to guarantee reliability and high performance. The systems integration and sensor fusion phases will follow, which will allow data from different sources to be combined for a more accurate perception of obstacles and the conformation of the track. Subsequently, a complete prototype will be implemented, which will be subjected to intensive testing in a real environment to evaluate its safety, effectiveness and reactivity.

RESULTS

The distinctive element of the system is the artificial vision module, designed to detect and interpret the characteristics of the terrain and any obstacles along the route in real time. The technological heart of the solution is an AI Edge unit, capable of processing advanced telemetry without the need for external connections, ensuring fluid operation even in mountain contexts. Real-time data processing will make it possible to provide precise and intuitive information to skiers, through tactile and vocal signals, significantly improving their orientation ability.

From a social point of view, the D4BLISS project represents a significant step towards the full inclusion of athletes with visual impairments in winter sports. Overcoming dependence on a physical companion not only offers greater personal autonomy, but also helps to improve the sporting experience, making it more accessible and rewarding.

CONCLUSION

Thanks to technological innovation and the use of solutions based on AI, the project aims to redefine the boundaries of accessibility in sport, allowing blind skiers to tackle the slopes with an unprecedented level of safety and independence.

Statement of Disclosures

Not applicable

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