

## PROBLEM

Blind and low-vision individuals struggle to navigate unfamiliar environments, such as campuses, museums, and hospitals, independently. Existing navigation tools lack contextual awareness and require establishments to install dedicated infrastructure, leaving users dependent on others to find their way.

## BENEFICIARIES



Blind People



Families of Blind People



Indoors Facilities

## COMPETITORS



NaviLens



Wayfindr



Be My Eyes

Unlike existing solutions, our product requires no pre-installed infrastructure. It works in any environment, exactly as it is. Compared to apps like Be My Eyes, it is entirely hands-free: with the camera embedded in the user's glasses and audio delivered through earphones, the user simply walks and asks, no phone to reach for, no waiting for a volunteer. This makes our solution uniquely accessible, autonomous, and universally deployable.



## SOLUTION

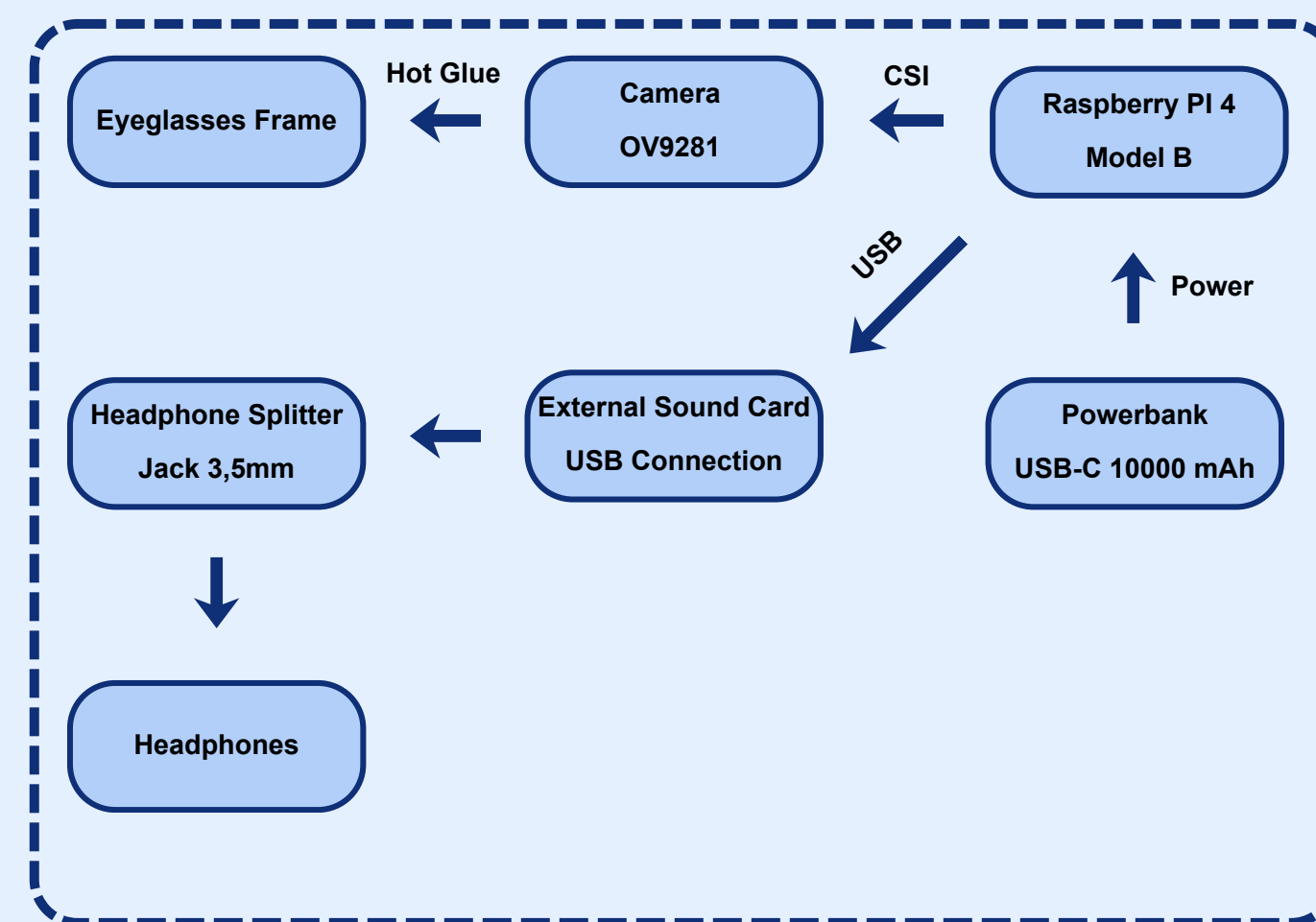
Our solution consists of AI-powered glasses equipped with a camera, microphone, and speaker. The user activates the system by saying "Óculos", followed by their question, and ending with "obrigado". The glasses instantly capture what the user is looking at, indicated by a single low-volume beep, send the image and question to the AI, which then analyses the scene, reads any visible text, and delivers a clear audio response — enabling low-vision individuals to navigate and explore any environment independently.

## REQUIREMENTS

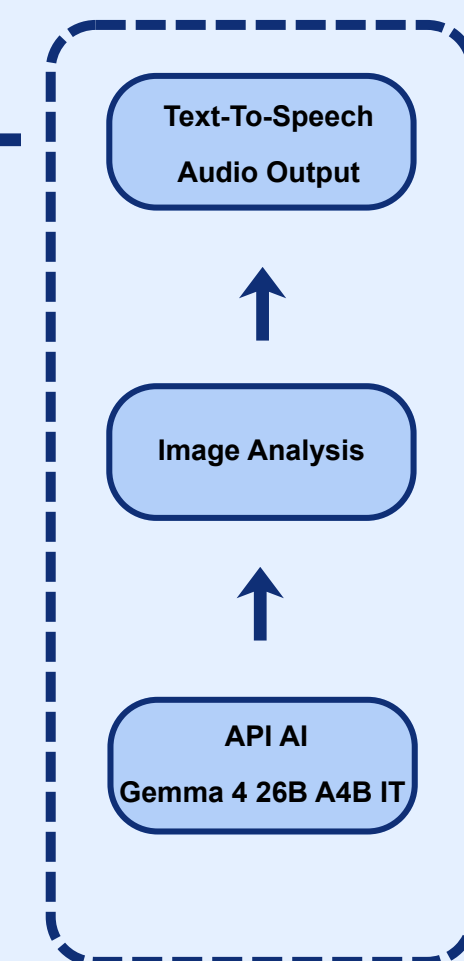
Our solution is built around three core requirements. It must be affordable and reliable, ensuring accessibility for everyone without compromising on performance. It must be intuitive and hands-free, allowing users to simply speak and receive clear audio guidance. Finally, it must be safe and private to protect user data.

## ARCHITECTURE

### Wearable Architecture



### Cloud Architecture

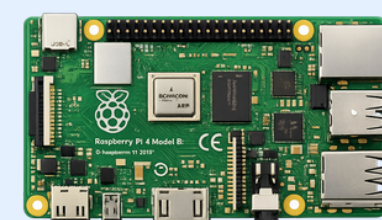


## TESTS & METRICS

To validate our prototype, we conducted hands-on testing by wearing a blindfold and relying solely on the system's audio responses. Across key scenarios, results were consistently accurate and reliable.

When asked about the location of specific objects, the system delivered responses that were simple, direct, and precise. When directed towards points of interest such as restrooms, staircases, and elevators, the system consistently provided clear, actionable guidance, demonstrating real potential to enhance the independence of blind and low-vision individuals in everyday environments.

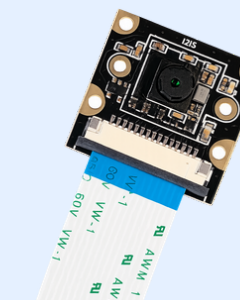
## MAIN COMPONENTS



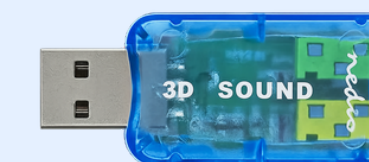
Raspberry PI 4 Model B - 78€



Powerbank 10000 mAh - 9€



Camera OV9281 - 30€



External Sound Card - 5€



José Santos



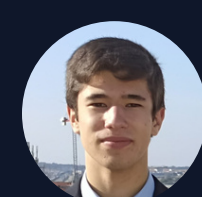
Miguel dos Santos



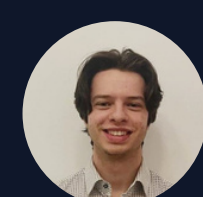
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Scientific Co-Advisor: Prof. Mariana Santana



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