

Dawggles

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Product Pitch

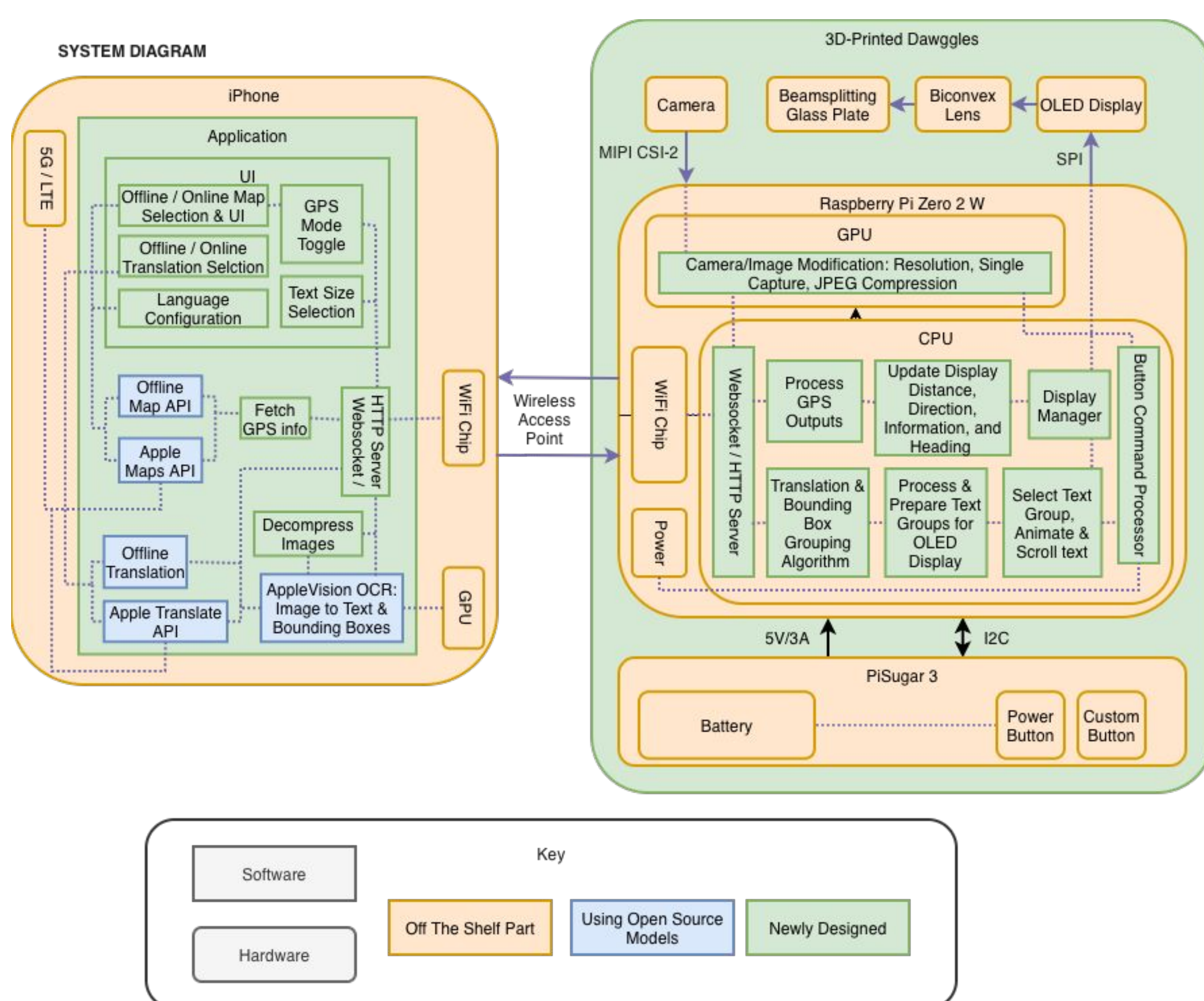
Dawggles are an open-source, low-cost pair of smart goggles designed to make heads-up displays practical and accessible for everyday use. We built comfortable set of goggles that can display translations or navigation directly in the user's view while still allowing them to see the world clearly.

For tourists, Dawggles is a seamless way to visit a foreign place without constantly diverting attention downwards to a smartphone. Within the tourist's field of view, they can translate speech and text or navigate to their next destination.

For developers, Dawggles offers a low-cost, open-source platform to create apps for the rapidly-growing platform of smart glasses. Rather than using costly, privacy-invasive platforms such as Meta Ray-Bans that are closed to developers, builders can easily print and assemble their own Dawggles.

System Architecture

The Dawggles system architecture is centered entirely around the use-case requirements. The major architectural choice of the Dawggles was to have the majority of computation done on an iPhone so as to optimize computation time, battery efficiency, and weight of the goggles. The computer on the Dawggles is primarily used as a messenger, hosting a Wi-Fi access point so that the iPhone can join it to receive images, send translations, and send navigation directions.



Conclusions & Additional Information



We learned to constantly iterate so that we could improve the comfort of the 3D-printed Dawggles and the easiness of the UI for translation and navigation.

In the future, users can create new apps and improve the optical system to fit into the form factor of sunglasses.



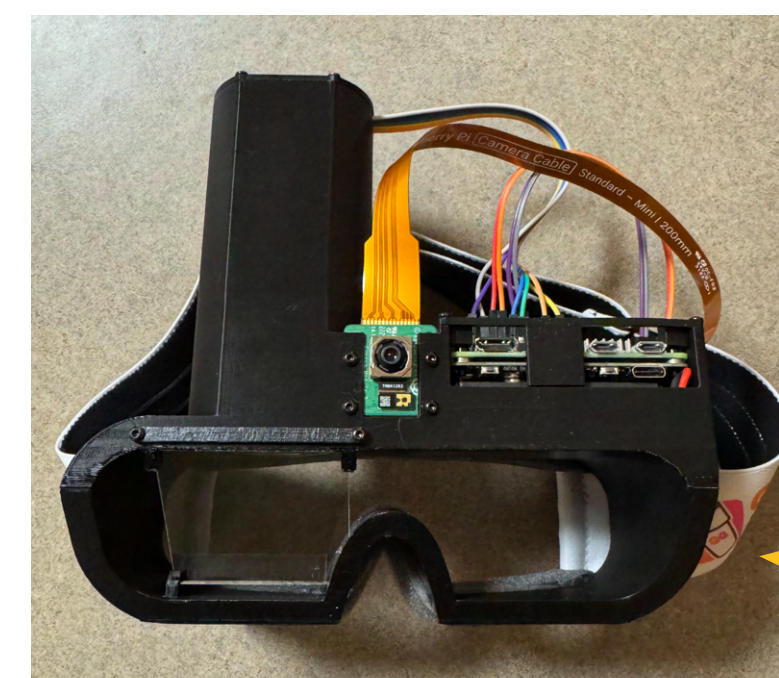
System Description

iOS

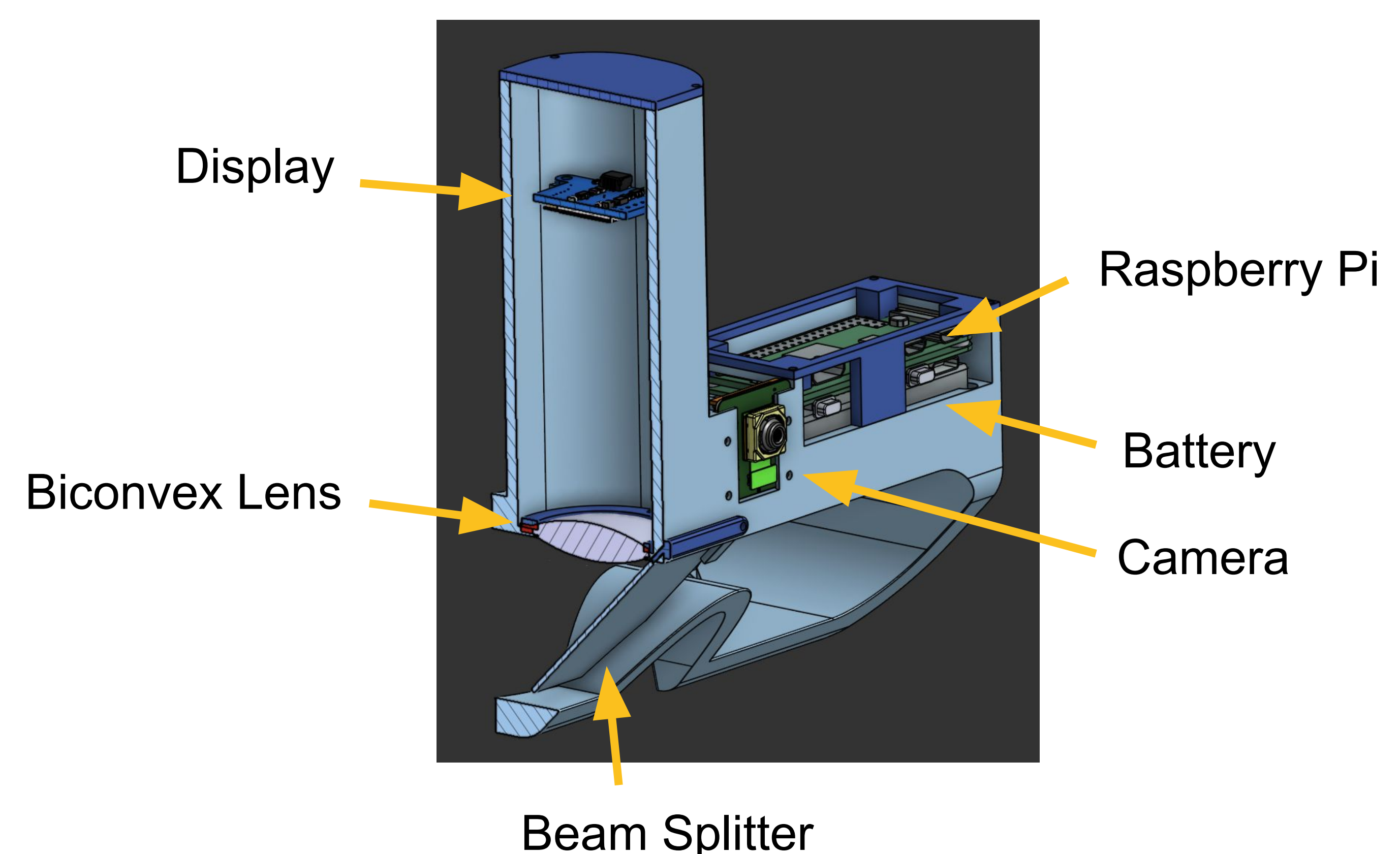
- Bluetooth + Wi-Fi pairing
- Translation: language selection
- Navigation: destination selection

Goggles

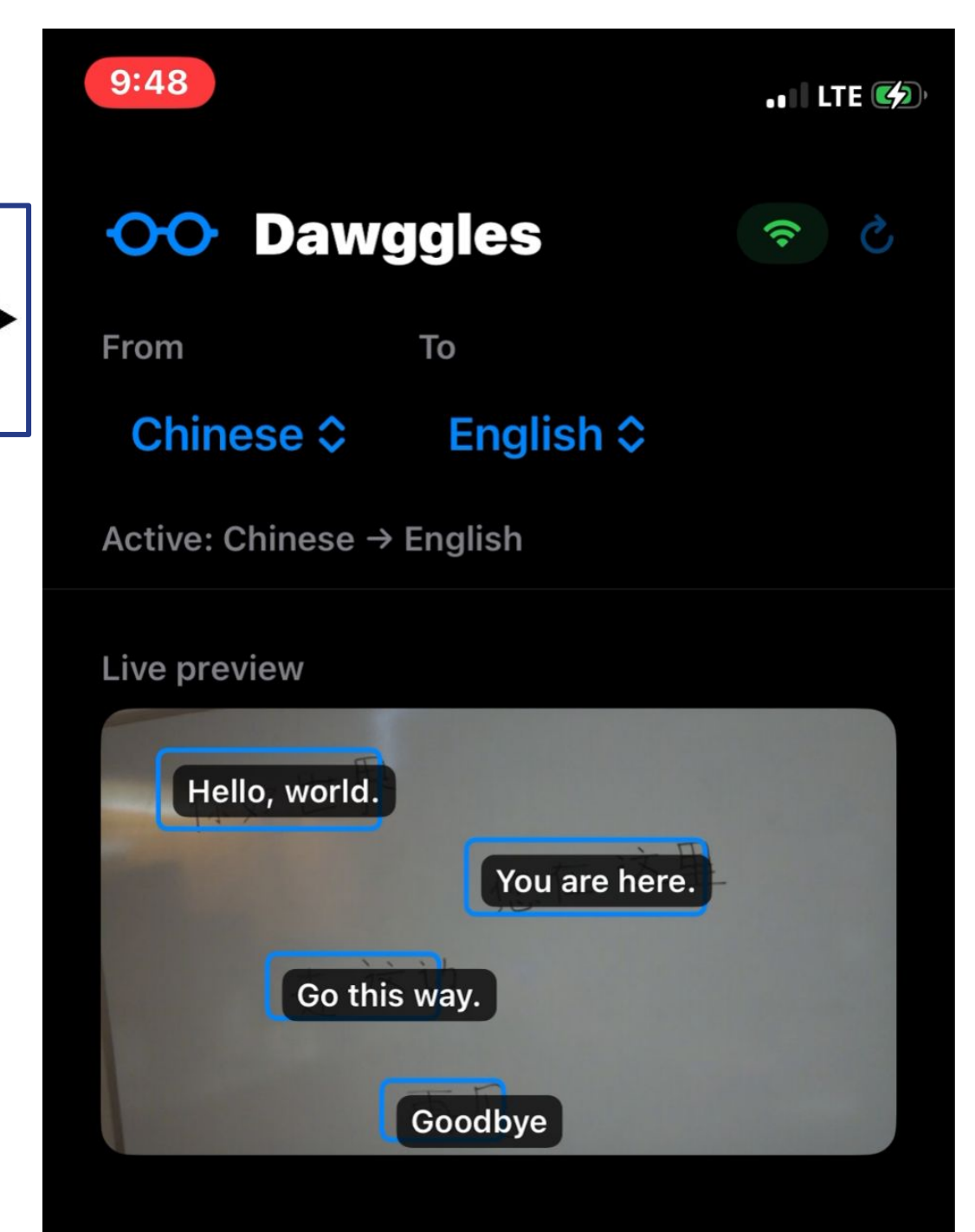
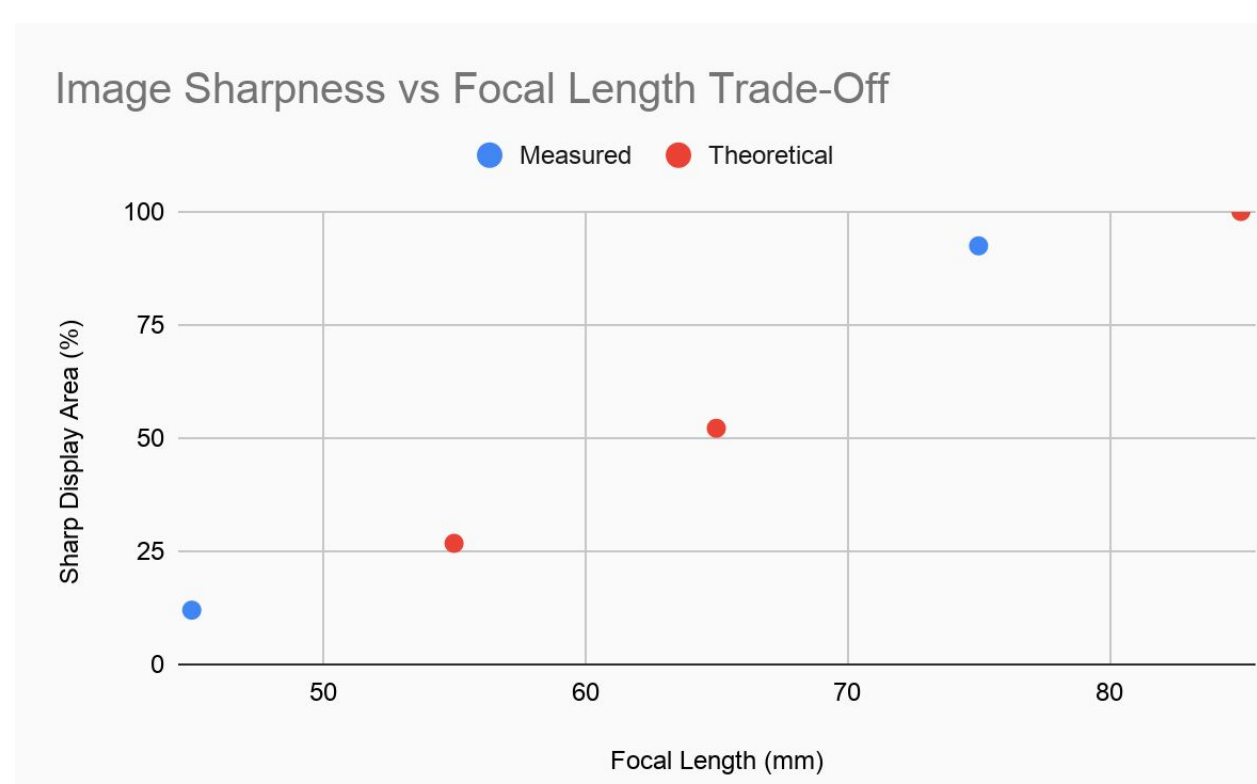
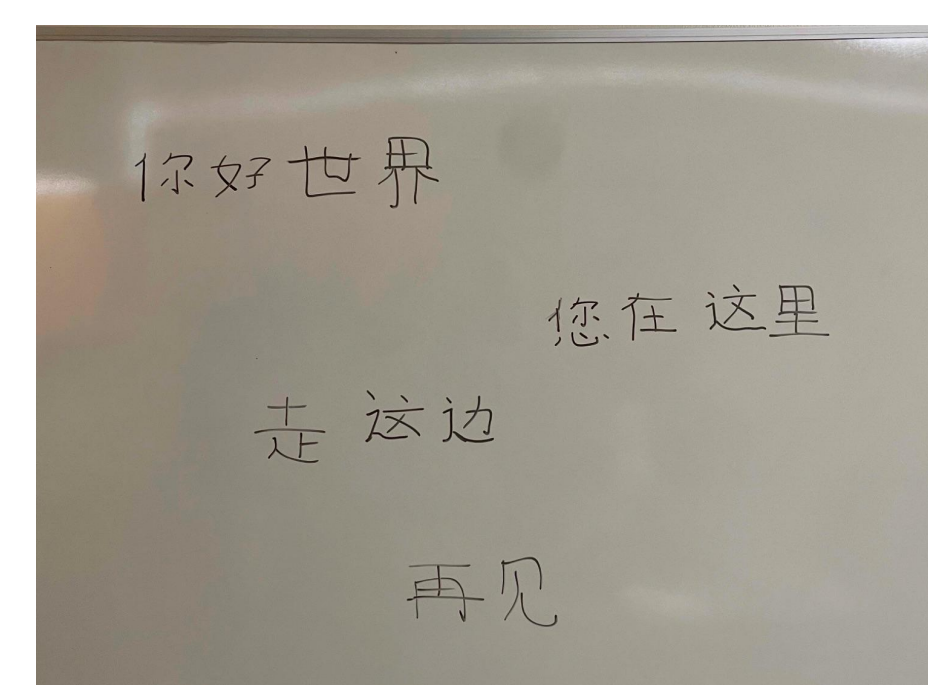
- Simple, intuitive UI
 - App selection
 - Battery status
 - Phone connection
- Next & back buttons
 - App scrolling
 - App interfacing



Next & Back Buttons



System Evaluation



Use-Case Requirements:

Metric	Target	Actual
Round Trip Translation Time	< 2 seconds	< 1 second
Words Displayed	≥ 15 words	~ 20 words
Virtual Image Distance	≥ 25 cm	~ 35 cm
Weight	< 500 grams	~ 300 grams
Battery Life	> 1.5 hours	~ 2 hours