Pedestrian Road Crossing Assitance

Help blind people cross roads

PRCA

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PRCA

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CIENTIFIC ADVISER AND MENTOR

- Scientific Advisor: Marcelino Santos
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PROBLEM

- Crossing a road without traffic lights very challenging and dangerous for persons with low vision or visual impairment.
- This problem is becoming more serious with the popularity of silent electrical vehicles.

New street layouts still unsafe, say blind people

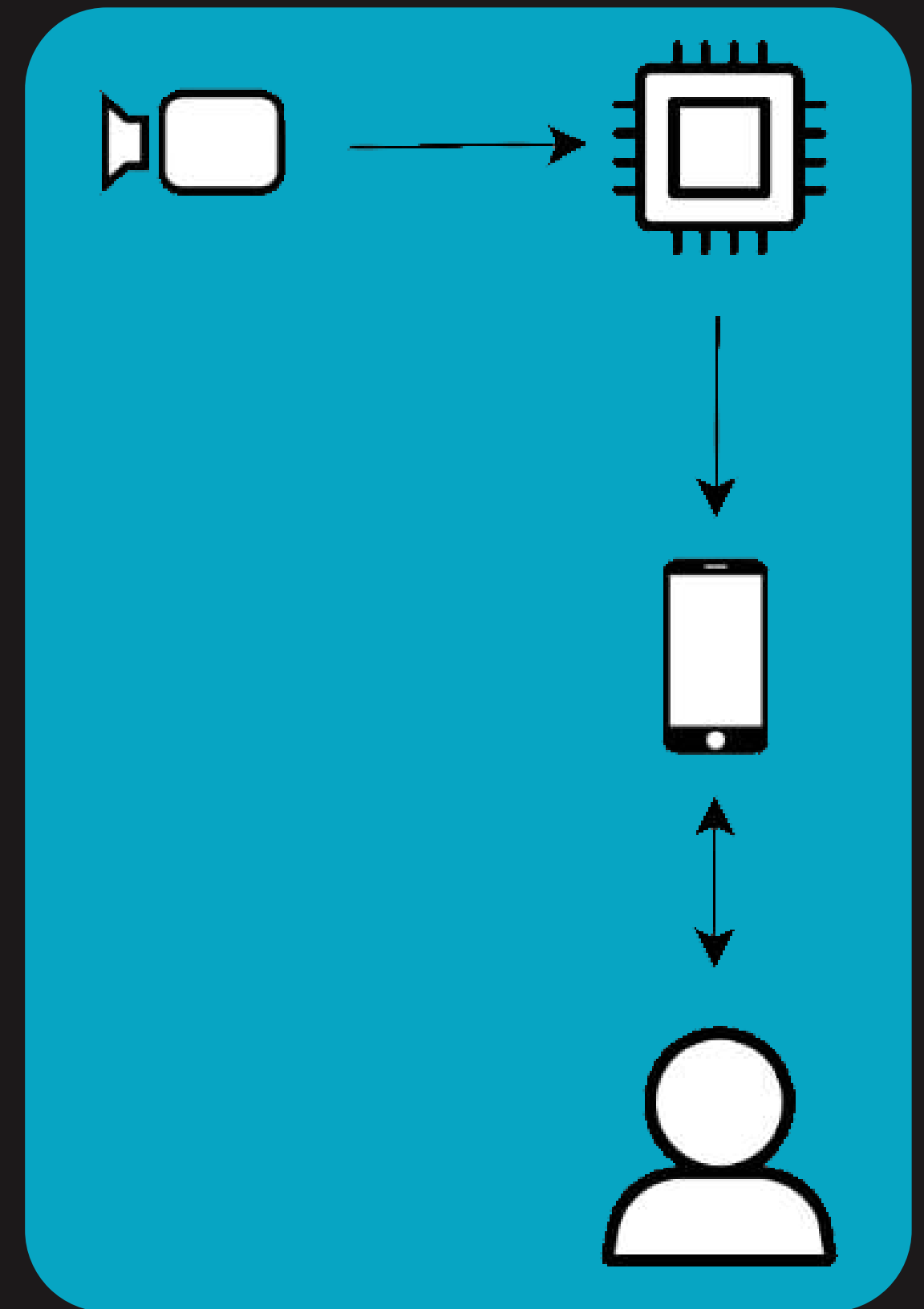'Please don't hit me': Visually impaired woman face dangers crossing Charlottetown street

SOLUTION BENEFICIARIES

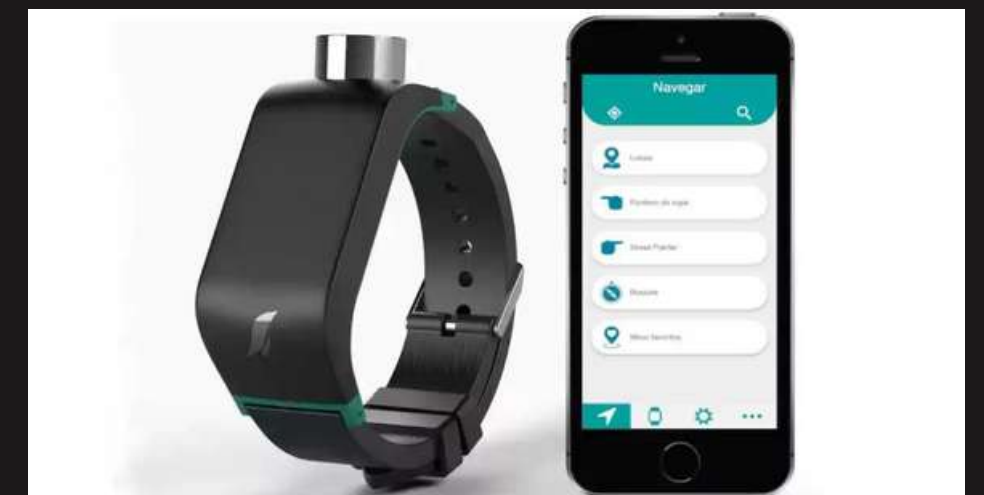Every low-vision and visually impaired pedestrian.

SOLUTION

- Small computer connected to two micro cameras inserted into a wearable accessory (i.e. Hat, headband, etc...) for the user to wear during their day-to-day life.

- The computer would run a program which peforms a live object detection and tracking program based on the footage collected by the cameras.

- Should the program detect an oncoming vehicle, the processor would send a signal to an app in the user's phone connected to the computer which would then warn the user
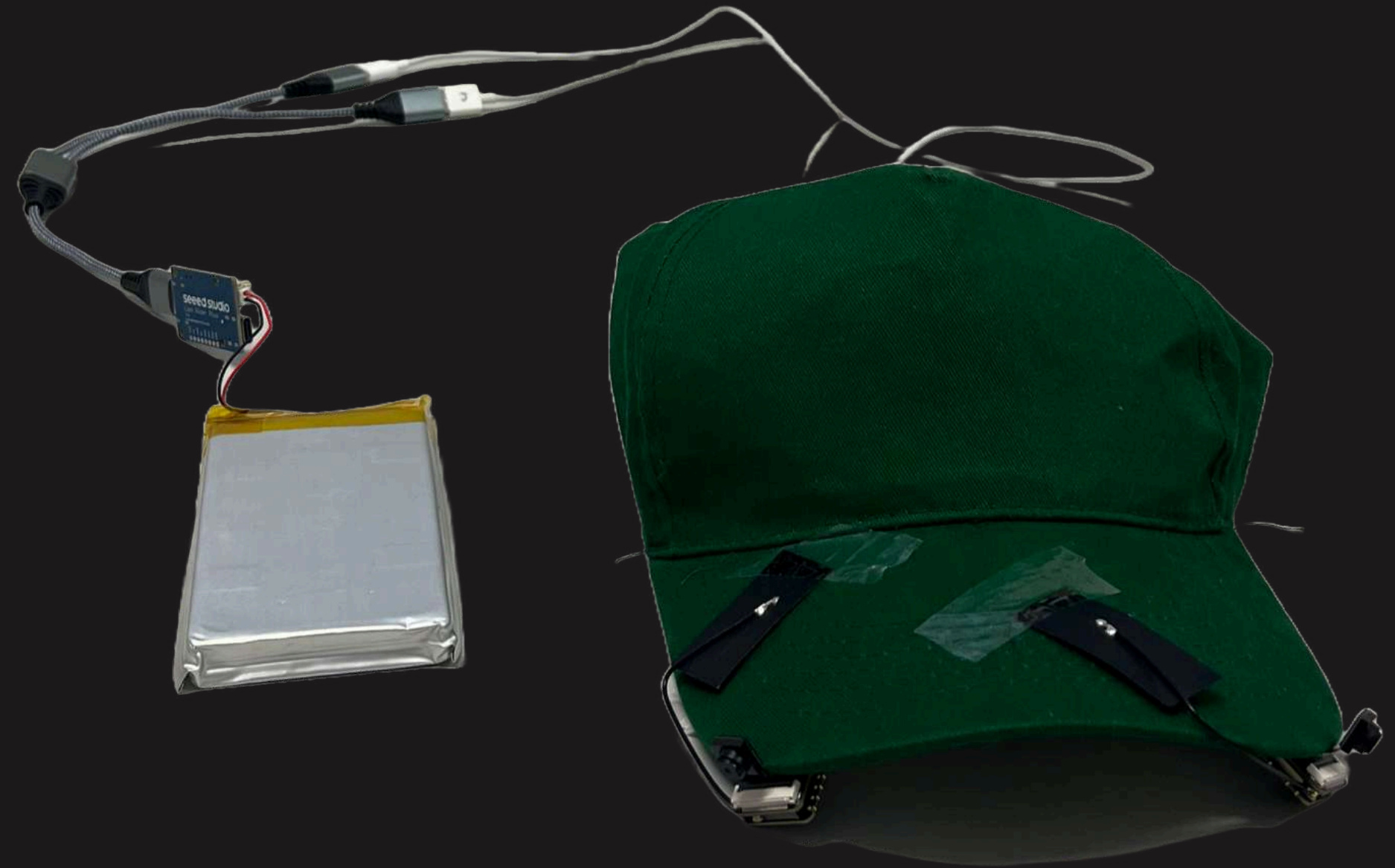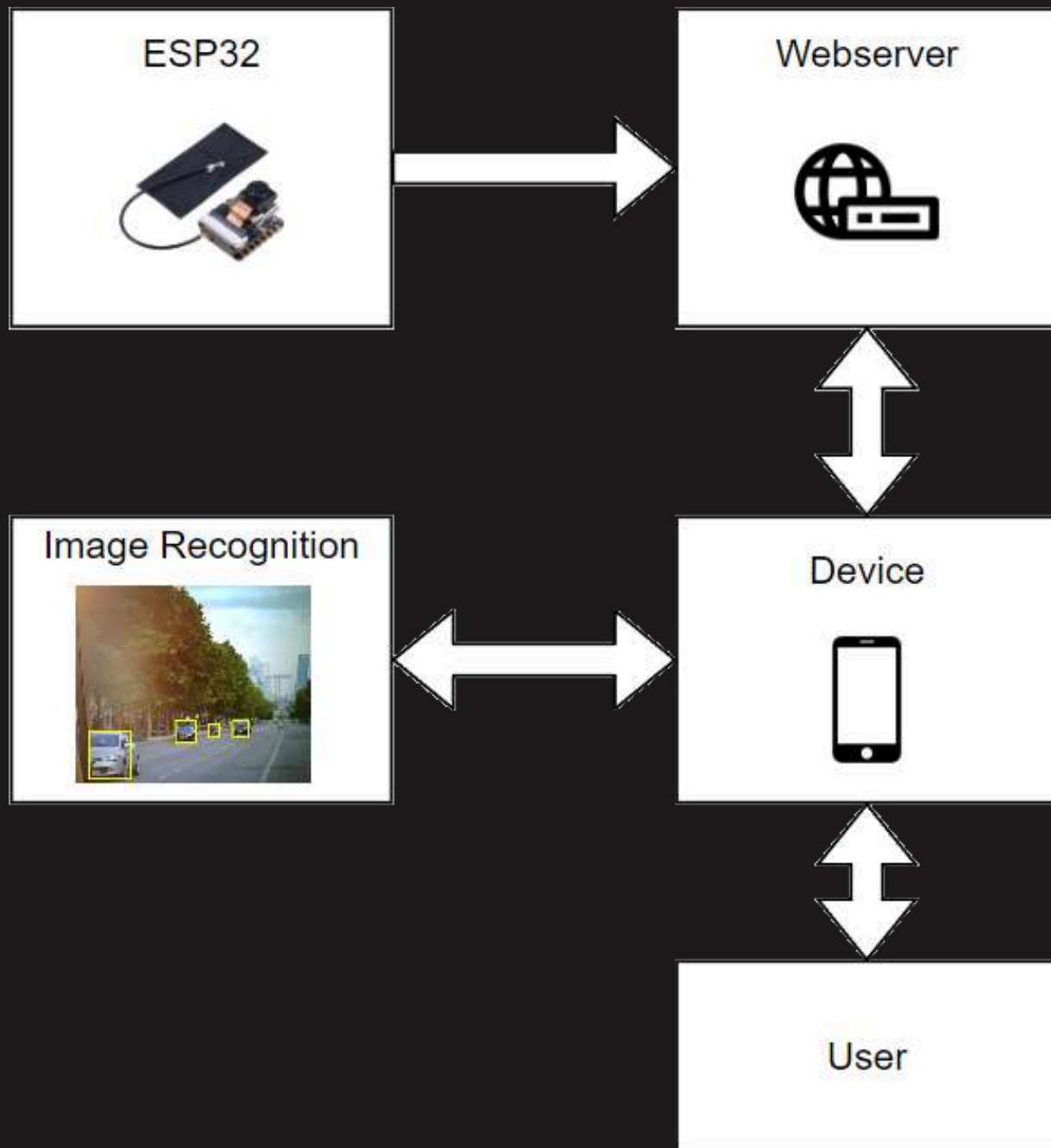
COMPETITORS AND PREVIOUS WORK

MEGA PONTES

- SunubandPulseira inteligente para cegos SmartwatchSUNU
  - Utilizes Echolocation (ultrasounds) – 5 meters range for opens areas and 2 meters for closed areas
  - Iteracts with phones GPS
  - Works in a sameway as a smartwatch
  - Used alongside a cane or guidedog
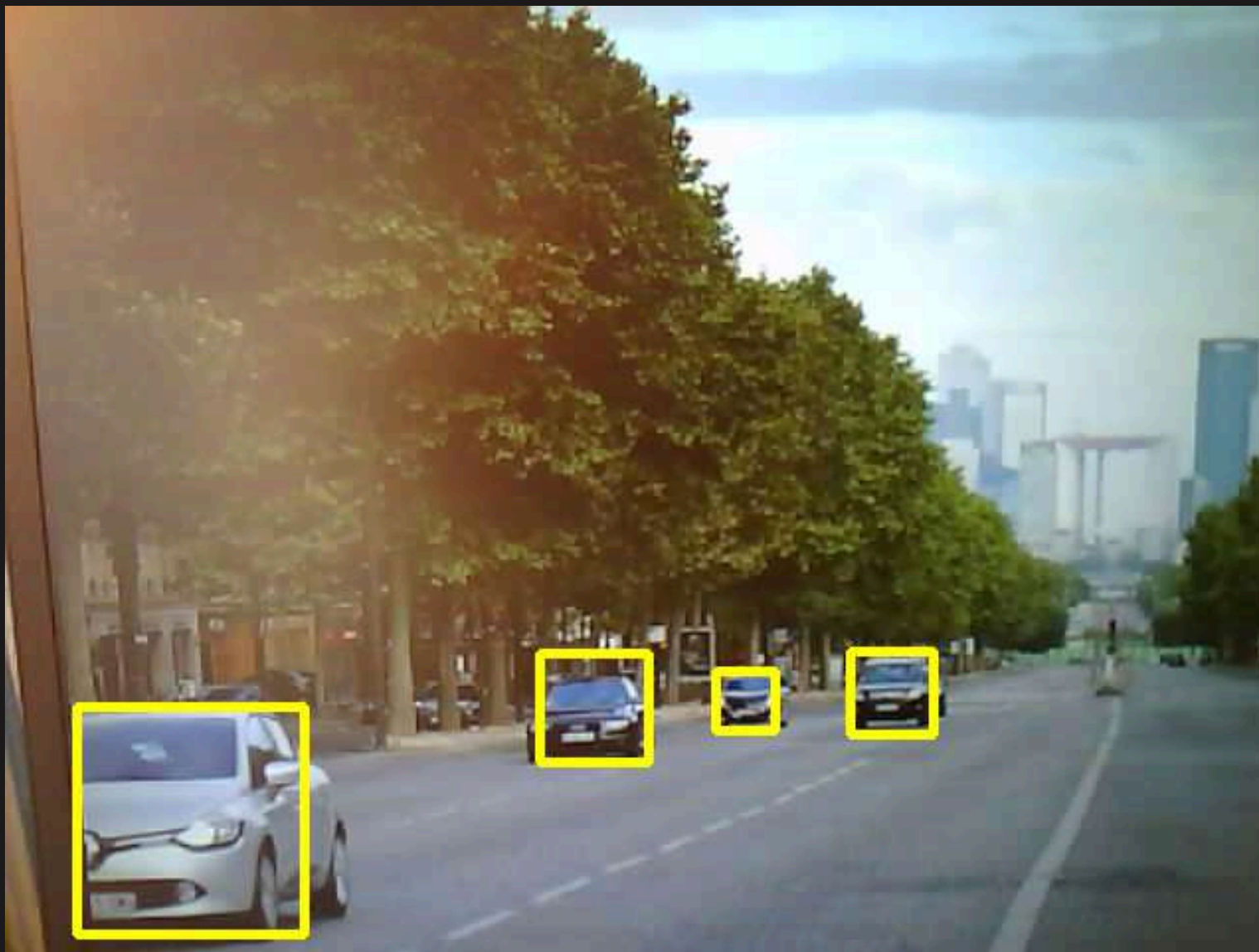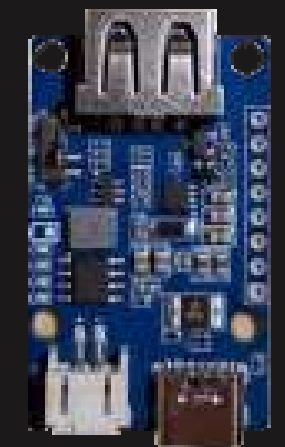 - Comunicates with vibrations and alerts

PROTOTYPE

RESULTS

- Detect and saves each car in an id
- Puts the id in a list while it is detected, only leaving when detected more than 3 times
- While an id is in the list alerts the pedestrain to wait
- Only says "go" when there are no cars detected or the cars detected have been alerted more than 3 times
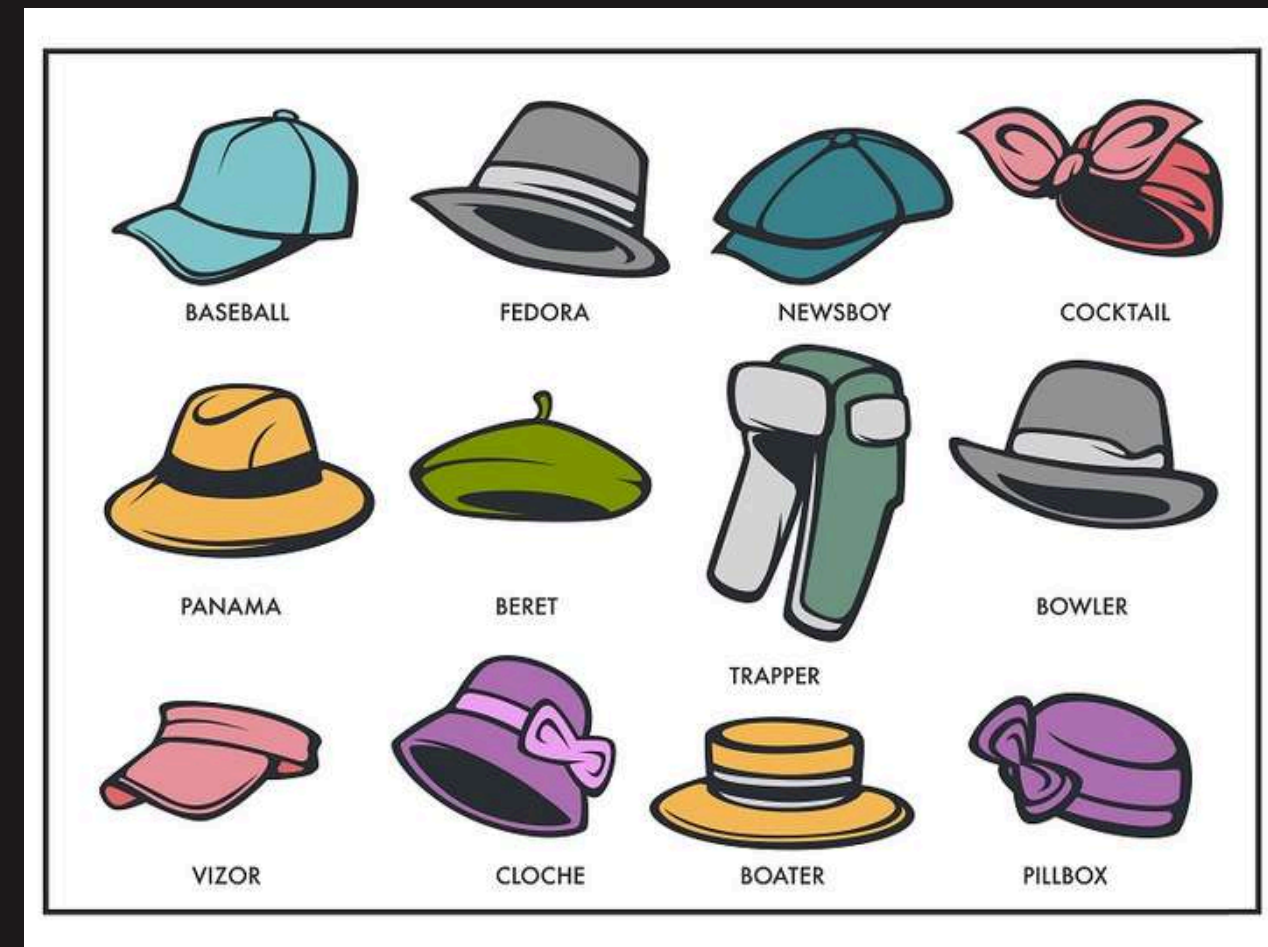
MATERIAL USED

- 2 X SEEED STUDIO XIAO ESP32S3 SENSE
- 2 X USB TYPE-C CABLES
- 1 X USB SPLITTER MALE TO 2 FEMALE USB 2.0 A
- 1 X LI-PO RIDER PLUS 5V/2.4A USB TYPE C
- 1x 3.7V 10.000 mAh Li-PO BATTERY
- 1 X HAT

BENEFITS

- More safe to walk on the streets as a blind person
- Portability
- Flexibility
- Unique
- Styleable

OBRIGADO!

https://web.tecnico.ulisboa.pt/ist1103423/