RiderGuard:
Intelligent Crash Detection System for 🚲Two-Wheelers🛴

Team ChatGPT:

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Why do we need RiderGuard?

Safety + Collect Proof

1. Detect crashes and send notifications for help
2. Provide a prompt for users to confirm their safety
3. Allow for timely intervention that could potential save lives

It's affordable, user-friendly, and particularly beneficial for the elderly!

What is our RideGuard made of?

Based on

RaspberryPi 3B+

Bread board

Tons of wires

* we also tried:

- The HC-SR501 PIR motion sensor, but decided to give it up for its forced 3 seconds delay (every sec matters when accident happens)

- Arduino but RaspberryPi won

+

4 Sensors:

- Accelerometer
- Sound sensor

*together triggers the condition of a crash

- Raspberry Pi Camera Module 2 (1080p30 video)
  - Provide most up to date video footage before the crash happened for legal purposes
- Ultrasonic sensor:
  - Used for measuring the changes in distance

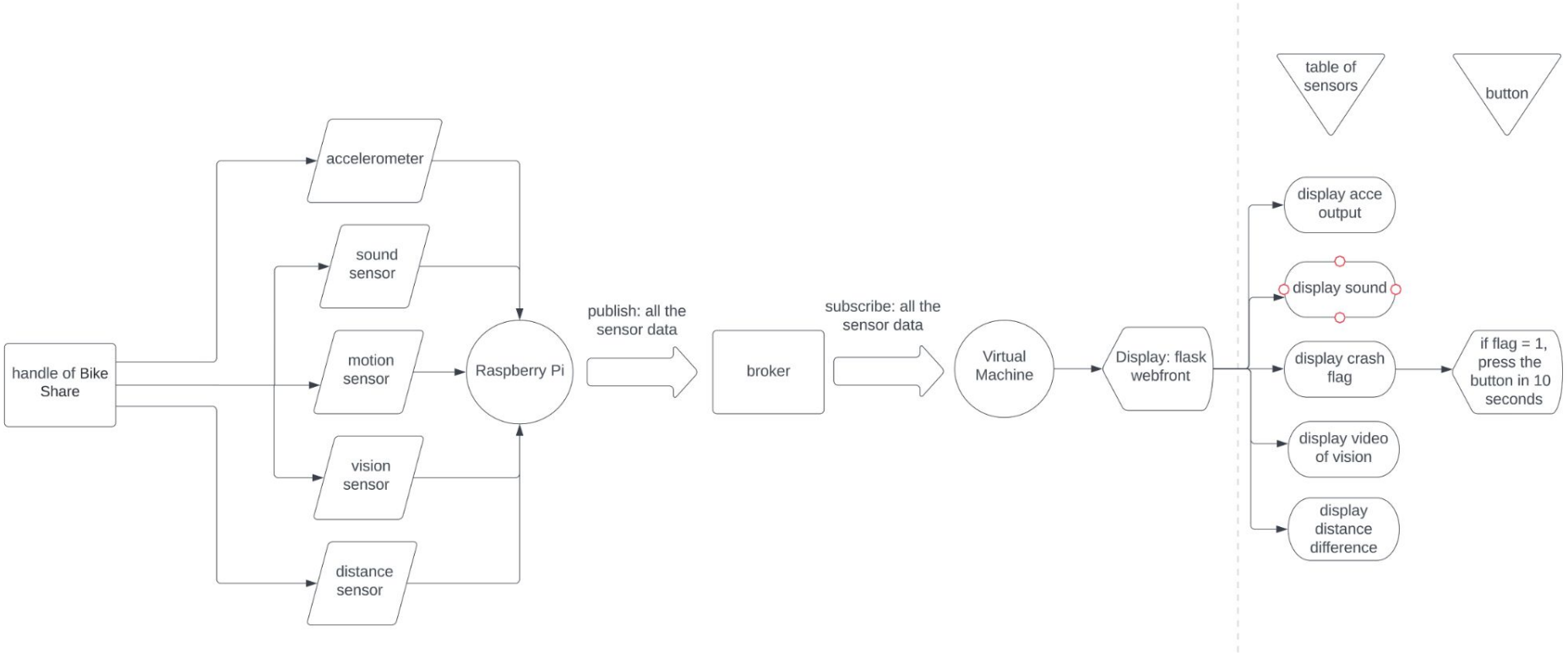
SO...
How does RideGuard work?

*Now it’s time to present some real Viterbi work

(aka. What dear Professors have taught us <3 we love you! we did learn MQTT well

What we think… & How do we want to improve it?

Limitations + Future expectations



Limitations + Future expectations

- Stability?

  We ran into many unstable hardware connection issue -> **soldering** ->

  If financially allowed, wires, sensors, and proper methods to fix all parts were available, it would be possible to eliminate these issues entirely.

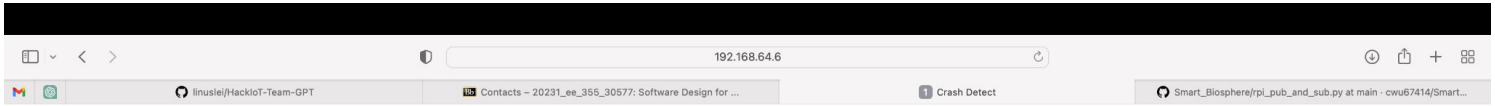
- Precision?

  Incorporating data from real-life tests and expanding the range of weather scenarios can lead to the development of a mathematical model that is more representative of actual conditions.

  Lack of access to Heart rate Sensors/ GPS sensors

- User Experience?

  Although we were constrained by time, we made efforts to address this area to the best of our ability & would touch it this feature up in the future:



Crash Detect

Accelerometer	Microphone Sensor	Motion Sensor	Camera Sensor
crash_detect/accelerometer	crash_detect/microphone_sensor	crash_detect/motion_sensor	crash_detect/camera_sensor

Crash Detect

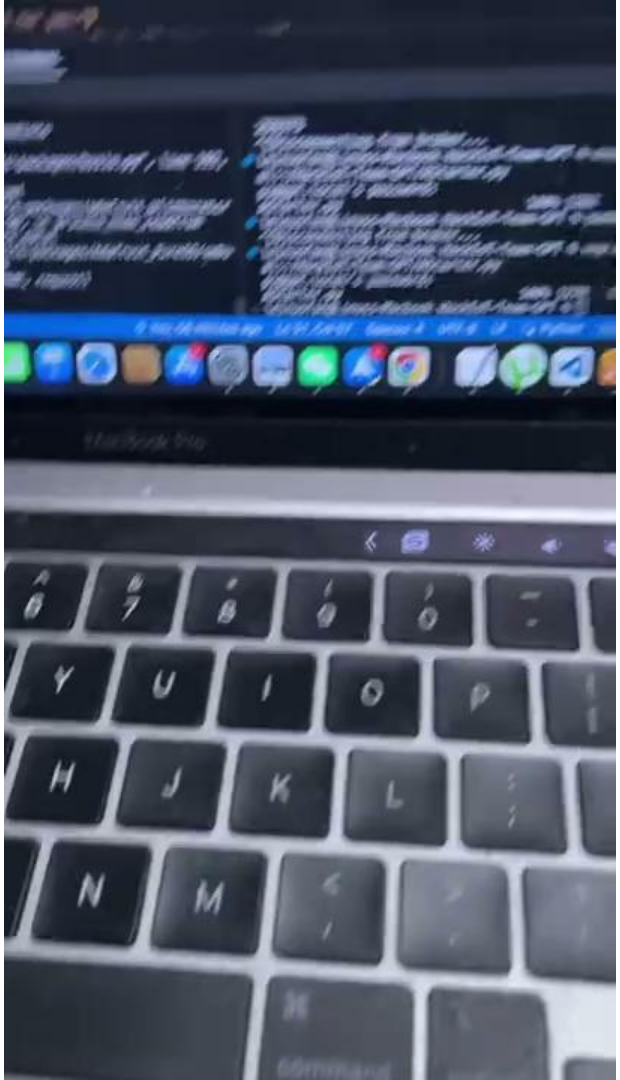
Accelerometer	Microphone Sensor	Motion Sensor	Camera Sensor	Distance Sensor
{{ accelerometer }}	{{ sound }}	{{ motion }}	{{ vision }}	{{ distance }}

{% if button %} Are you okay? {% endif %}

You have 10 seconds to confirm you are okay!

Close

DEMO



Thank You