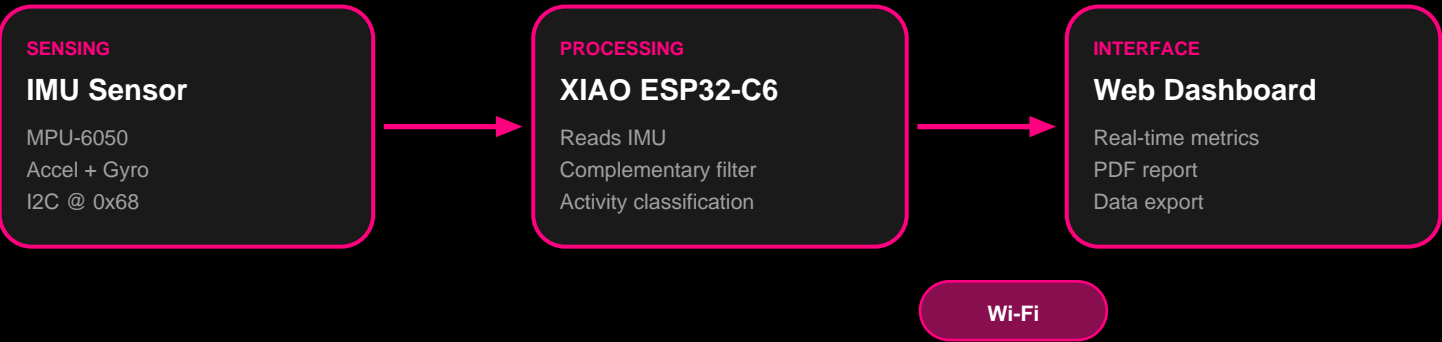


# KRYPTO SUPPORT

System Integration Diagram | Fab Academy 2026 | Ana Sofia Tellez Andrade

## System Overview

Wearable IMU monitor for canine Vestibular Disease tracking



## Component Inventory

Layer	Component	Specification	Function
Sensing	GY-521 MPU-6050	I2C, 16-bit ADC	Motion & orientation data
Processing	XIAO ESP32-C6	RISC-V, Wi-Fi 6	Data processing & transmission
Power	LiPo 3.7V 400mAh	JST 2.0mm connector	Portable power supply
Charging	TP4056 module	USB-C charging	Safe LiPo charging circuit
Protection	BAT54 Schottky	SOD-323	Reverse polarity protection
Enclosure	TPU 3D print	Flexible, 1.2mm walls	PCB housing inside vest
Garment	Textile vest	Custom fitted	Wearable carrier for electronics

## Data Flow

- 1 IMU sends raw accelerometer + gyroscope readings to ESP32 over I2C
- 2 ESP32 applies complementary filter to compute pitch and roll angles
- 3 Activity is classified: rest, movement, or impact (threshold-based)
- 4 Data is served as JSON over Wi-Fi via HTTP endpoints (/datos, /reset)
- 5 Web dashboard polls every 1s and updates real-time metrics
- 6 Daily report can be generated as PDF for the veterinarian

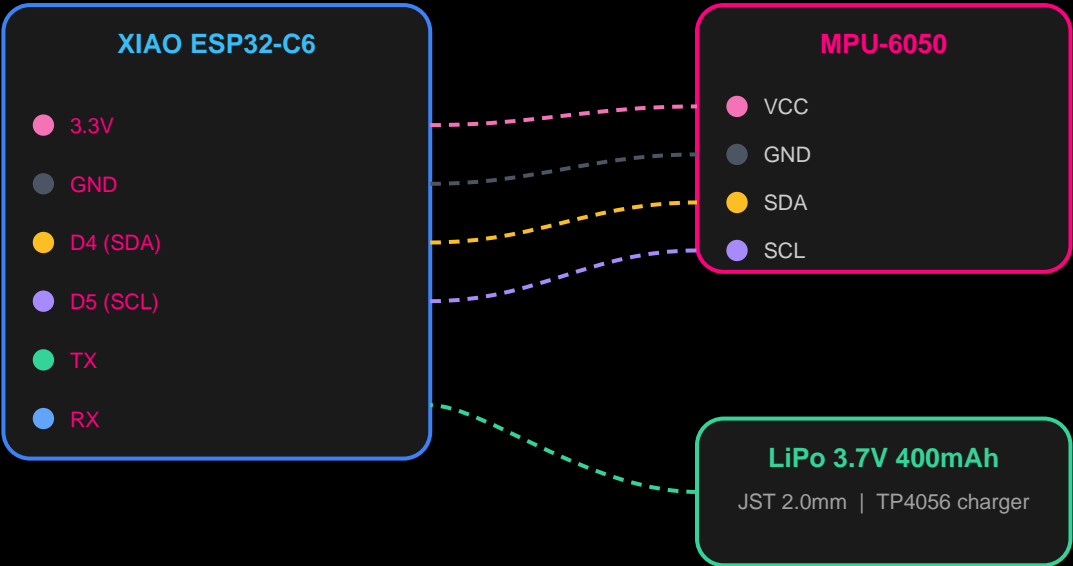
# KRYPTO SUPPORT

## Alert System & Wiring Diagram

### Alert Types

Alert Type	Trigger	Threshold	Clinical Relevance
Impact	Accel magnitude spike	> 2.5g	Possible fall or balance episode
Abnormal posture	Pitch outside range	> 45 deg sustained	Head tilt -- VDD symptom
Low activity	Near-zero movement	> 30 min continuous	Lethargy or episode aftermath
High activity	Sustained movement	> 60 min continuous	Overexertion risk

### Wiring Connections



#### Wire Legend

- 3.3V Power
- GND
- I2C SDA (D4)
- I2C SCL (D5)
- Battery