Rider Telemetry Challenge
Pre-Hackathon Brief

Overview

In this hackathon, teams will design and demonstrate a **wearable telemetry system** that can be mounted on a rider's gear to capture and visualize movement and ride data in real time.

Your prototype should combine **hardware sensors** and a **mobile or web application** to sense, transmit, and display information about the rider's motion and location.
The goal is to produce a **working demo** that clearly shows how sensor data can reveal useful insights about how a person rides or moves.

You may also use a **smartphone as a sensing device** by mounting it on the riding gear. This sensing phone will collect motion and GPS data, while a **second phone (or separate app interface)** can be used to view live data, map visualization, and logs.

What You Should Prepare

Teams are encouraged to begin gathering basic components and tools that can help with:

- **Motion sensing:** accelerometer, gyroscope, IMU module, or smartphone sensors
- **Position tracking:** GPS module or phone GPS API
- **Wireless data transfer:** BLE, Wi-Fi, or direct USB connection
- **Mobile or web visualization:** Android app, React web dashboard, etc.
- **On-device data logging:** SD card, local phone storage that can be exported as a simple CSV/JSON file

Teams may freely choose their hardware and software platforms.
Low-cost, easy-to-mount sensors are preferred — for example, **ESP32 or Arduino boards, MPU-series IMUs, and GPS breakout modules.**

Alternatively, you may use a **second phone as the viewer** while the **first phone functions as the mounted sensing unit.**

Hints

- The system will be tested through different phases of movement involving both **walking and riding.**
- Sensors must stay attached to the riding gear but be **removable without damage.**
- **Data storage and timestamps** will play an important role in evaluation.
- The **mobile app** should show live feedback — such as speed, acceleration, or a map trace.

Recommended Team Skills

A strong team will combine:

- **Electronics / hardware setup:** sensors, interfacing, power
- **Software / app development:** data display, logging, UX
- **Design / mounting:** lightweight, stable, removable attachment

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Deliverables at the Hackathon

You will be asked to present:

1. A **functioning prototype** mounted on provided riding gear.
2. A **live demo** showing sensor readings and location tracking.
3. A brief explanation of **how your system works** and what insights it can provide.

Final Instructions

The full and detailed **problem statement, judging criteria, and test track** description will be revealed **on the day of the hackathon.**

Focus this week on:

- Gathering sensors and essential components
- Preparing your development environment
- Ensuring you can **read and visualize live data** from at least one motion and one position sensor

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Detailed Problem Will Be Revealed on Event Day