SafeShipping API IoT data

## **Streams** from various industries, ensuring **real-time monitoring and automation** across logistics, manufacturing, healthcare, and more.

**📡 IoT Data Streams Across Industries**

Here’s a **diverse set of IoT measurement devices** that can feed into **SafeShipping’s blockchain records**:

**🚢 Maritime & Cargo Shipping**

* **GPS Trackers** → Real-time vessel location
* **Temperature Sensors** → Cold-chain monitoring for perishable goods
* **Humidity Sensors** → Prevent moisture damage in containers
* **Shock & Vibration Sensors** → Detect rough handling or impact
* **Seal Integrity Sensors** → Verify tamper-proof security seals
* **Fuel Consumption Sensors** → Optimize fuel efficiency for cargo ships

**✈️ Aviation & Air Freight**

* **Altitude & Pressure Sensors** → Monitor cargo conditions in-flight
* **CO2 & Air Quality Sensors** → Ensure safe transport of sensitive materials
* **Cargo Hold Temperature Sensors** → Maintain stability for pharmaceuticals
* **Black Box Data Streams** → Flight telemetry for cargo tracking
* **RFID & Barcode Scanners** → Automate package identification

**🚛 Trucking & Freight Logistics**

* **Tire Pressure Sensors** → Prevent blowouts and optimize fuel efficiency
* **Brake Wear Sensors** → Predictive maintenance for fleet safety
* **Load Weight Sensors** → Prevent overloading violations
* **Route Optimization AI** → Dynamic traffic rerouting for deliveries
* **Driver Fatigue Monitoring** → AI-driven safety alerts

**🏭 Manufacturing & Industrial Supply Chains**

* **Vibration Sensors** → Predict machine failures before breakdowns
* **Chemical Sensors** → Detect hazardous leaks in factories
* **RFID Asset Tracking** → Automate inventory management
* **Energy Consumption Sensors** → Optimize power usage in production
* **AI-Powered Predictive Maintenance** → Reduce downtime with smart analytics

**🏥 Healthcare & Pharmaceutical Logistics**

* **Cold Storage Temperature Sensors** → Ensure vaccine stability
* **Sterility & Contamination Sensors** → Monitor medical shipments
* **IoT-Enabled Smart Packaging** → Track medicine expiration dates
* **Biometric Sensors** → Secure medical transport with identity verification

**🌱 Agriculture & Food Supply Chains**

* **Soil Moisture Sensors** → Optimize irrigation for crop transport
* **Pesticide Residue Sensors** → Ensure food safety compliance
* **Smart Warehouse Temperature Sensors** → Prevent spoilage in storage
* **Blockchain-Verified Organic Certification** → Authenticate farm-to-table tracking

**🚀 How This Enhances SafeShipping**

✔ **Real-time IoT data streams ensure shipment integrity** ✔ **Blockchain-backed tracking prevents fraud & tampering** ✔ **Predictive analytics optimize transport efficiency** ✔ **Cross-industry compatibility makes SafeShipping scalable**