🗺️ Architecture Diagram Explanation (for deliverables/architecture_diagram.md)

🏗️ Warehouse Robot Navigation Architecture

Sensors (LIDAR, Camera)

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IoT Gateway (Edge Device) → Publishes data via MQTT

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AWS IoT Core (Topic: warehouse/robot1/status)

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Data Routing Rules:

  - Rule 1 → Amazon S3 → Store telemetry

  - Rule 2 → Amazon SNS → Send collision alerts

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Cloud Storage & Analytics (S3, Athena, SageMaker)

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Model (CNN + RL)

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Robot Actuators (Motors, Wheels)

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Monitoring & Retraining Feedback Loop

✅ **Key AWS Roles:**

- iot_s3_warehouse_robot_role → writes IoT data to S3
- iot_sns_robot_alert_role → triggers SNS alerts