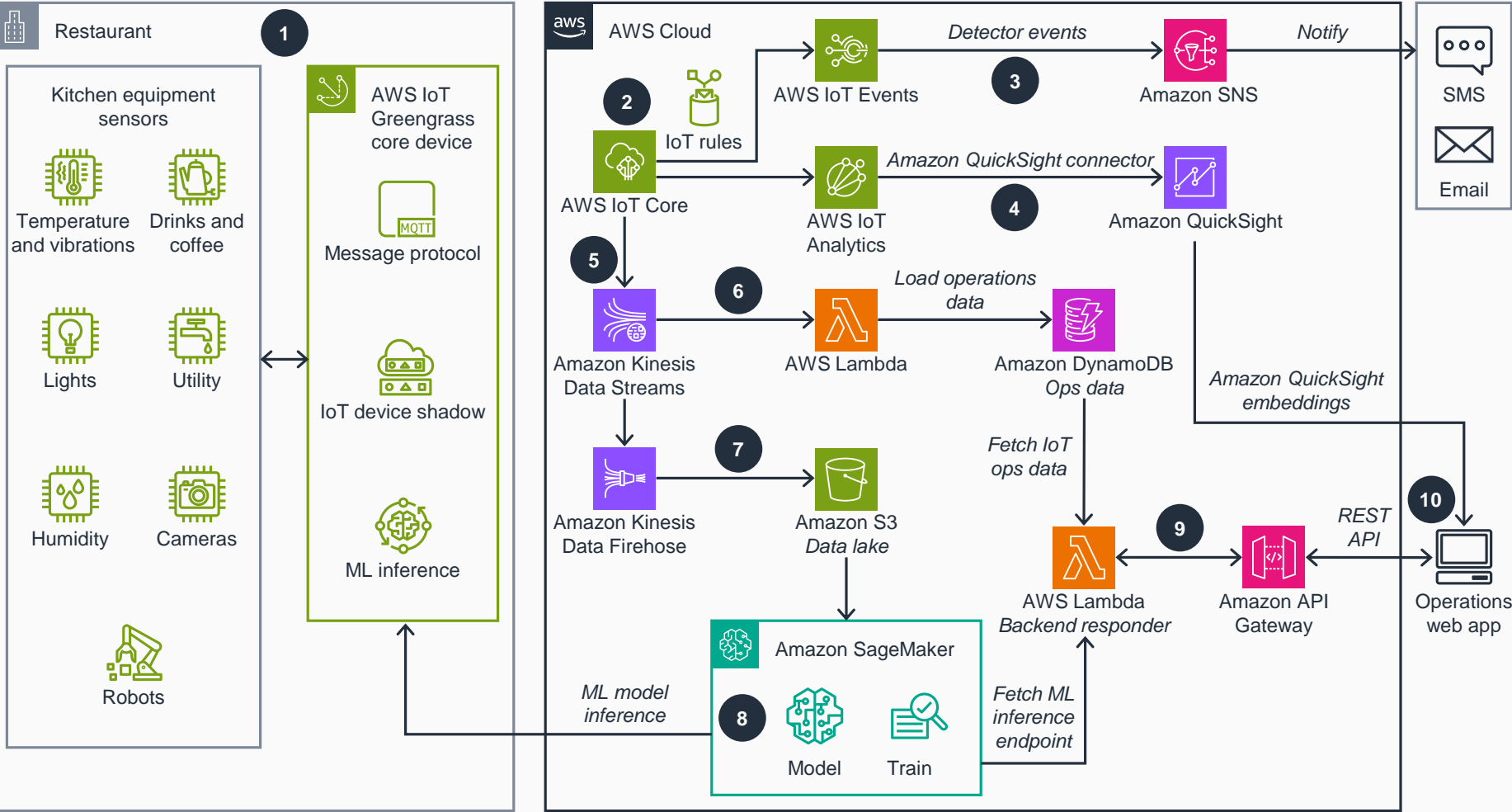


# Guidance for Connected Restaurants Using Internet of Things on AWS

This architecture diagram shows how restaurants can enhance operational efficiency and the employee experience through IoT-connected kitchen devices.



- 1 Use an **AWS IoT Greengrass** core device to connect, publish, and subscribe to data from IoT sensors on kitchen equipment on the edge over the open standard Message Queuing Telemetry Transport (MQTT) protocol.
- 2 Use **AWS IoT Core** to maintain shadows of all IoT devices, connect to AWS, and manage messages from IoT sensors for further processing.
- 3 Create a detector model in **AWS IoT Events** with **AWS IoT Core** as the input source. Configure **Amazon Simple Notification Service (Amazon SNS)** in the detector model to send notifications by SMS or email when an unusual event occurs or when a sensor reaches your set thresholds.
- 4 Use **AWS IoT Analytics** to aggregate, transform, and analyze IoT messages from **AWS IoT Core**. Build an IoT analysis dashboard and visualizations on **Amazon QuickSight**.
- 5 Configure an IoT rule to send messages from **AWS IoT Core** to **Amazon Kinesis Data Streams** for downstream processing.
- 6 Use an **AWS Lambda** function to process messages from **Kinesis Data Streams**, and store them in **Amazon DynamoDB**.
- 7 **Amazon Kinesis Data Firehose** reads data from **Kinesis Data Streams** and stores it in a data lake built on **Amazon Simple Storage Service (Amazon S3)**.
- 8 Use **Amazon SageMaker** to build, train, and validate ML models for predictive maintenance and anomaly detection for your kitchen equipment. Optionally, use this ML model inference with an **AWS IoT Greengrass** core device on the edge.
- 9 Use a **Lambda** function to process all IoT data stored on a **DynamoDB** table and fetch the ML model inference endpoint for predictions. Create a REST API with a **Lambda** function as a backend on **Amazon API Gateway**.
- 10 Create a kitchen operations web application that centralizes equipment monitoring and predictive maintenance capabilities. Integrate a **QuickSight** dashboard using **QuickSight** embeddings.