System Proposal

Group Name: **Just Me**

Members: Vasques, John Paul S.

System Title: **SmartBin: IoT-Enabled Waste Monitoring System**

Description:

> SmartBin is an IoT-based trash can system equipped with sensors that monitor the fill level of the bin in real time. The system uses a microcontroller (ESP32 or ESP8266) to collect data from an ultrasonic sensor, and then it integrates with RESTful APIs to provide enhanced functionality.

> SmartBin helps reduce overflow, supports predictive waste collection, and provides a smart, interactive experience with voice feedback.

System Type:
> System that uses a RESTful API

Expected API Integrations:

- **Google Text-to-Speech API**
  Allows SmartBin to interact with users through voice alerts, providing verbal reminders when the bin is full or needs maintenance.

- **IFTTT Webhooks API**
  Triggers actions like sending an email, push notification, or logging an event to Google Sheets when the bin is full.

- **Firebase Realtime Database / Firestore**
  Stores sensor data such as fill level percentage, date/time, and location of bin. Enables dashboard analytics for admins.