Elevator Movement Monitor

On this project, we were tasked with developing a solution to help monitor and analyse unusual sound and movements of an elevator. The client, an elevator company, had received complaints from a customer that one of their elevators was making more noise than it should be, causing annoyance to office users. However, the problem was that the noise never occurred when they were waiting for it, making it difficult to diagnose the issue. So our task was to create a sensor that would record any sound or movement at any given time, recording the results to a database using a rest API. we were able to build an elevator monitoring system that records data from a sensor attached to the elevator and sends it to a server for processing. The system is built using two different programming languages. The monitoring system is built using platform IO and edge device "adafruit_feather_esp32s3_nopsram" , and the server is built using Node.js, creating the server. Also adding an alert notification to the phone or any wanted device to send a message whenever there are movements in the elevator using PushSafer. For this task the sensor that was used was a LIS3DH accelerometer using the Adafruit_LIS3DH library, reading X, Y and Y, concentrating mostly on the X and Y values, which determine the movements side to side and up and down.

In conclusion, we were able to effectively build a system to assist in the monitoring and analysis of unexpected sounds and motions in an elevator. We were successful in developing a sensor that records data at any given time and sends it to a server for processing using a REST API. To read the X, Y, and Z data, we utilized the Adafruit Feather ESP32S3 No PSRAM edge device and the LIS3DH accelerometer, as well as the Adafruit_LIS3DH library. Platform IO was used to build our monitoring system, and Node.js was used to build our server. We also built an alarm notification function that used PushSafer to send messages to specified devices whenever the elevator moved. The ability to employ this monitoring system in any of their elevators will help the elevator company tremendously in identifying and repairing any problems with its elevators, which will increase customer satisfaction and safety.