Team 404

Automated Maintenance Solution and Load Distribution

Introduction

In any organisation, making sure that resources are as productive and efficient as they can be is an obvious goal that is desired.

There is a large amount of time being spent in elevators, waiting for elevators, maintenance of elevators, etc. Evidently, we'd like to reduce some of these wait times, and at least make sure that things are running at peak capacity.

This is the purpose of our system, which aims to make sure that elevators in a building are being used equally and that their maintenance is automated, much like the information networks of today.

Reduce Wait Times

Usually, we notice that when people go into a building, they pick any elevator and wait in line. They might choose an elevator that seems to have less number of people waiting on it. However, this doesn't make sure that the person will get to their destination in a timely manner as everyone could go to different floors. However, there is no way for users to derive this information.

Our system will include a display on each elevator entry, which display all the scheduled stops of that elevator. Thus, the users will have more information with which to make decisions and has the freedom to choose an elevator that goes to their destination quicker.

In addition, our system will also keep track of various parameters such as elevator health, load (number of scheduled stops), button response times, etc. and our system will be able to keep this information in mind when load balancing the elevators, and can automatically route more people to other elevators.

This has the added benefit of even wear and tear of elevator components, thus scheduling maintenance of elevators becomes simpler.

Make maintenance easier

Our system will, as mentioned previously, keep track of various parameters of the elevator, including health status.

A lot of times, we can tell that an elevator is due for maintenance from the sounds it makes. Our system will analyse and record these sounds, and make automated decisions to schedule maintenance.

We also have access to the number of stops that an elevator makes, and elevators will have a endurance/durability rating. Based on this data, and using data analysis, trend analysis, and machine learning, we can predict the failures of elevators, automate the maintenance of elevators, and notify maintenance teams of imminent failure, allowing them to make smarter decisions, and thus keep systems working.

User feedback

One of the ways that maintenance is carried out, and maintenance decisions are made, is through user feedback. We plan to make this process easier and quicker by including touch screens in the

elevators. These touch screens can take user input quickly and efficiently. In addition, these screens can be reused for multiple applications, such as advertisements, games to make users happier, emergency announcements, user notifications, etc.