

**REAL-TIME ELEVATOR CAPACITY MONITORING  
WITH ALERT SYSTEM**

**UNDERGRADUATE THESIS**  
Submitted as one of the requirements to obtain  
Sarjana Komputer (S.Kom.)

**By:**

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**FACULTY OF COMPUTING  
INFORMATION TECHNOLOGY STUDY PROGRAM  
PRESIDENT UNIVERSITY  
CIKARANG, BEKASI  
September, 2023**

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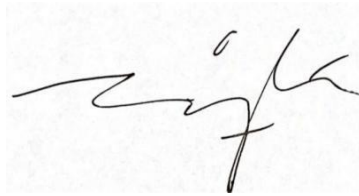
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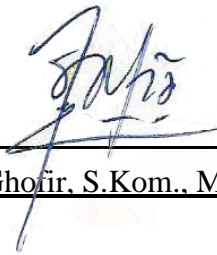
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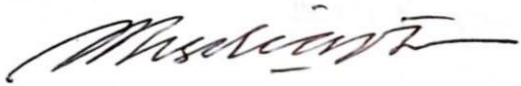
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# REAL-TIME ELEVATOR CAPACITY MONITORING WITH ALERT SYSTEM

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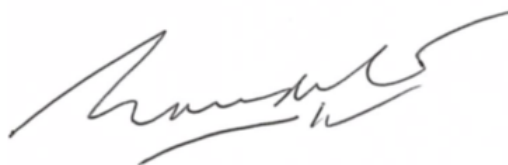
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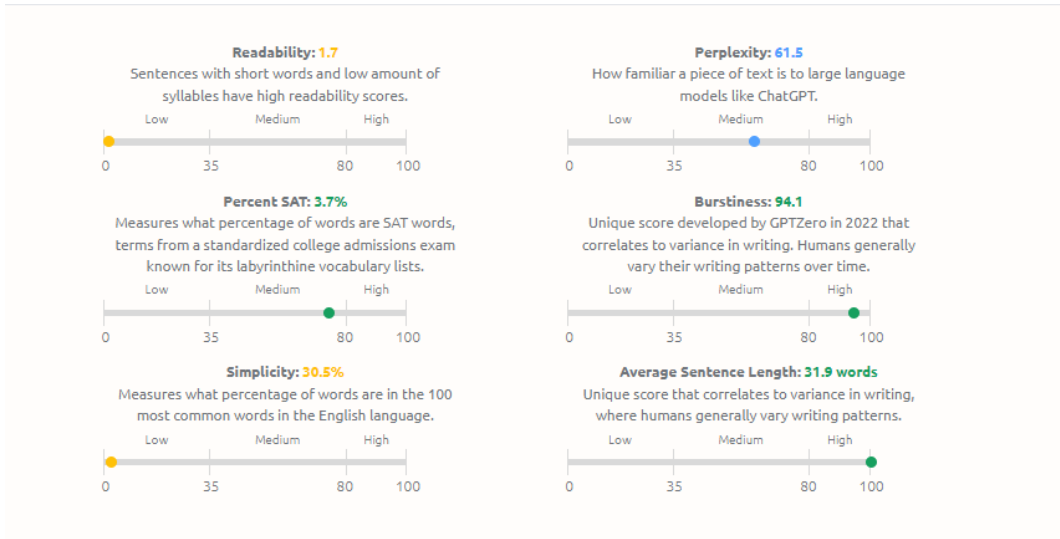
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## **ABSTRACT**

In response to the growing in importance of improving safety and health precautions in crowded public environments, the project introduces an innovative solution known as "Real-time Elevator Capacity Monitoring with Alert System." The main goal behind the system is to take a proactive step in managing and optimizing how many people use elevators simultaneously. As such, it places a strong emphasis on safeguarding passenger health and limiting the potential spread of the virus, especially in densely populated areas. The project responds to the urgent need for better safety measures in places where elevators are often crowded with people. This is done by introducing a system that actively tracks how many people are in the elevator at any given time, ensuring it doesn't get too crowded. It not only prioritizes passenger well-being but also plays an important role in minimizing the risk of spreading the virus in busy urban environments.

The system utilizes cutting-edge technology, specifically the YOLOv7 (You Only Look Once) object detection framework, to perform real-time video analysis. That is, it keeps a close eye on the elevator cabin through cameras, identifying and tracking each person as they enter and exit. This super-detailed data serves as the basis for calculating the exact number of people in the elevator, ensuring it is not too crowded.

When the number of people in the elevator approaches or exceeds a certain limit (which can be configured based on safety rules), the alert feature starts. It doesn't just silently trigger an alert; It uses audible signals, such as announcements, to notify everyone inside the elevator of capacity issues. In this way, people are immediately aware of the situation, helping them make safer choices and follow the applicable guidelines.

***Keywords: Elevator Capacity Monitoring, Object Detection, YOLOv7, Real-time Monitoring, Health, Safety, Virus Spread Mitigation, Public Space.***

## DEDICATION

*With love and a grateful heart, I would like to dedicate this final project to My Lord and Savior, Jesus Christ. My beloved mom and grandma, my little brother, and those who have stood by my side with their continuous love and support.*

*The people I adore and look up to, Kim Namjoon, Kim Seokjin, Min Yoongi, Jung Hoseok, Park Jimin, Kim Taehyung, and lastly, Jeon Jungkook. Your music and existence are my solace. Thank you for accompanying me throughout this long journey and being the friends I needed during those times, when I found it hard even to just figure out what I want to be. From the moment I opened that magic shop door, I felt warm and home.*

*Lastly, the one and only, the precious me. I can finally dedicate this final project to you.*

*May the years ahead only ever be brighter for you.*

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