

# **Location-Based Alerts for Passengers in Public Transportation**

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Fachhochschul-Bachelorstudiengang

Mobile Computing

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# Declaration

I hereby declare and confirm that this thesis is entirely the result of my own original work. Where other sources of information have been used, they have been indicated as such and properly acknowledged. I further declare that this or similar work has not been submitted for credit elsewhere. This printed copy is identical to the submitted electronic version.

Hagenberg, June 25, 2024

Antonia Stieger

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# Abstract

This should be a 1-page (maximum) summary of your work in English.

# Kurzfassung

An dieser Stelle steht eine Zusammenfassung der Arbeit, Umfang max. 1 Seite. ...



# Chapter 1

## Introduction

1.1 Motivation

1.2 Challenges

1.3 Goals

1.4 Structure

## Chapter 2

### Related Work

## Chapter 3

# Fundamentals

### 3.1 Geofencing Technologies

#### 3.1.1 Understanding Geofencing

#### 3.1.2 Limitations of Geofencing

### 3.2 Using Geofencing in Public Transportation

#### 3.2.1 Delays and Bus Shortages

#### 3.2.2 Missing Real-Time Locating Capabilities

### 3.3 App Concept and Design

### 3.4 Types of Alert Systems

#### 3.4.1 Time-Based Mode

#### 3.4.2 Station-Based Mode

#### 3.4.3 Distance-Based Mode

#### 3.4.4 Hybrid Mode

## Chapter 4

# Implementation

### 4.1 GeofenceManager using CLLocationManager

#### 4.1.1 Permissions and Capabilities

#### 4.1.2 Start Monitoring Region

Geofence Level 1: Notification

Geofence Level 2: Vibration

Geofence Level 3: Alarm

#### 4.1.3 Stop Monitoring Region

### 4.2 Displaying Route on Map

### 4.3 Alarm Management in iOS

## Chapter 5

# Discussion and Conclusion

### 5.1 Interpretation of Findings

### 5.2 Implications for Public Transportation

## References

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