Dormbene

EE4-67 Mobile Healthcare and Machine Learning Design Report

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*Abstract*—

# Introduction

# Hypothesis

This project aims to provide a better sleeping experience overall from having the room temperature automatically adjust to sleeping schedules and information from a myriad of sensors from a tracking device. This project also advises the user about the best times to go to bed from calendar integration, reducing the effects of jet-lag where possible. The user will benefit from our project according to the following hypotheses:

1. Better sleep quality can be achieved by sleeping in an ideal sleeping temperature, thereby preventing situations where the user cannot fall asleep because the environment is too cold or hot.
2. The feeling of grogginess can be reduced when waking up by setting the alarm to go off when the user is not in deep sleep.
3. The effects of jet-lag can be minimized by gradually adjusting to the destination time zone by modifying sleeping times, before and during the trip [1].

# Related Work and Background Research

## Existing Products

## Background Research

# System Design

## Hardware

### Sensors

## Software

### Machine Learning

### Web Interface

### Mobile Application

# Evaluation Criteria

# Conclusion

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# References

[1] J. Waterhouse, T. Reilly, G. Atkinson, and B. Edwards, ‘Jet lag: trends and coping strategies’, *The Lancet*, vol. 369, no. 9567, pp. 1117–1129, 2007.