UNIVERSITI TEKNOLOGI MARA

Design and fabrication of smart alarm clock for effortless mornings

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ABSTRACT

Alarm clocks are widely used and come in a variety of forms. Their usefulness has been demonstrated over time. But modern consumers want things that are more than just functional; they want something that can be used for several purposes and is inventive. With a focus on portability and physical engagement, this concept seeks to reinvent the conventional alarm clock from a new angle. While most of the items on the market are good, they frequently don't allow for user customization or inclusive design. This project fills this gap by creating a unique alarm clock that makes use of readily available materials and effective manufacturing techniques. It acknowledges the special requirements of those with hearing impairments and students living in dorms and workers who occasionally need to wake up early. The goal is to surpass user expectations by the smooth integration of useful features with an interesting and approachable design. Essentially, the goal of this project is to reinvent the alarm clock by creating a new benchmark for usability, portability, and a user-friendly interface.

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CHAPTER ONE
INTRODUCTION

1.1 Background of Study

Sleep is one of the basic physiological processes for human survival. Both sleep quantity and sleep quality are fundamental components of sleep. [1] Poor sleep quality or insufficient sleep quantity can have profound consequences on physical, mental, and cognitive functioning. Lack of sleep has been associated with a weakened immune system in terms of physical health, which makes people more vulnerable to illnesses and affects general health. An increased chance of acquiring chronic disorders including obesity, diabetes, and cardiovascular diseases has also been linked to long term sleep deprivation. Sleep issues influence mental health as well, magnifying stress levels and making it harder to control emotions. They also contribute to mood disorders like sadness and anxiety. Inadequate sleep also has a detrimental impact on cognitive processes including retention of memories, learning, attention, and decision making. [2]

Sleep is an indicator of wellbeing and poor sleep is a modifiable health risk factor. [3] In Singapore, the Singapore Health 2012, a population wide study reported that 27.2% of respondents had poor sleep based on data from PSQI, which is comparable with other populations in Asian societies, like China (26.6%) and Japan (26.4%). [4] The need for solutions to enhance sleeping habits is justified by Singapore's significant rate of poor sleep quality. The objective of the study is to fill in many gaps and limitations in previous studies on the connection between alarm clocks and sleep quality. Previous research has mostly concentrated on conventional sound-based alarm clocks and relied on subjective self-report sleep quality assessments. The goal of the study is to investigate the effects of novel alarm clock designs, including a mechanical arm with soft flappers, and to include objective indicators of sleep quality. To evaluate the long-term impact of various alarm clock designs on sleep quality. By filling up these gaps, the study will further knowledge of how alarm clocks might affect sleep quality and provide guidance for the creation of innovative designs that improve the waking experience.