OULU UNIVERSITY OF APPLIED SCIENCES

PROJECT ARDUINO WAKE-UP LIGHT

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Introduction

It's definitely not the most comfortable feeling waking up in pitch black darkness to an annoying beeping sound. Arduino Wake-up Light mimics natural sunrise and ensures you wake up feeling lively and full of energy. Arduino Wake-up Light is super easy to use and comes with a sleek touch screen and a bunch of neat features. Waking up has never been so exciting!

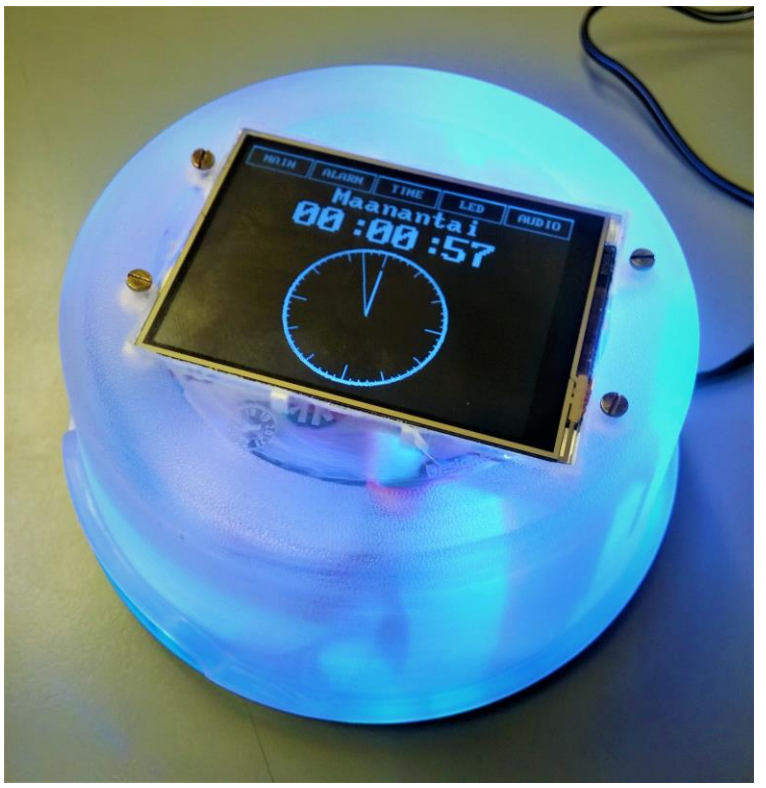

FIGURE 1. Arduino Wake-up Light

Objectives

Our goal is to provide the user with a pleasurable wake-up experience. To achieve this we have created a conveniently sized ice lantern looking smart device that nicely lights up your room growing brighter towards your set alarm time. We also looked forward to creating a pleasent user interface completely controlled by touch with useful user-adjustable features.

Functionality

Arduino Wake-up Light is controlled by a 4DSystems uLCD-32PTU touch screen. The interface is divided into five seperate menus. In the first one there's the time displayed on digital and analog form. Next is the alarm menu where you can set the alarm time. Third one is for setting the current time and date. Fourth we have the LED menu which controls the color of the wake-up light and the interface layout. The fifth menu is the audio menu which contains an audio library of alarm sounds and a volume bar. With the help of three MOSFETs and resistors Arduino controls a RGB LED strip that slowly gets brighter as we get towards the set alarm time. There's a built-in speaker in the touch screen which we use to play the alarm sounds that are stored on a micro-SD card plugged in to the screen's connector. The system is powered by a 12V power supply.

Conclusion

The end product succeeded not only to fulfil the requirements set in the planning phase of the project but also to include the planned optimal features. In the end we have a versatile smart device that reliably does what it's supposed to. The project was definitely a successful one and a great learning experience for all three of us.

Project

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