CM3-07
Smart Light LED Light Bulb

Supervisor
Prof. Mansun Chan

Teammates
CHEUNG Ka Kei
YU Pak Ming
Introduction

- **Project Overview**
  Decoration lightings are usually found in the indoor areas like retail shops, cafe, restaurants, etc. Energy consumed in these areas can be reduced by using LEDs which is an energy efficient lighting element.

- **Specification**
  LED Color: *Red, Green, Blue, White*
  Number of 1W LEDs: 8
  Power consumption: 9W

- **System Block Diagram**

  ![System Block Diagram](image)

  *LED driver powered by Vcc 12V.*
Technical Details

Achievements

1. Design of the panel to produce the best color effect.

2. Optimization between the size, heat dissipation and light intensity.

3. Development of the different color modes.

Modes offered:
- Discrete color mode
- Random color mode
- Color track mode
- Timer mode
Results

- **Colors mixing effects**

  Color mixing is achieved by composing the RED, Green and Blue light. LED brightness is controlled by Pulse width modulation (PWM)

- **Whole System**

- **Further development**

  Reduce the height by using the surface mount package components for the microcontroller and voltage regulators.