

# EEE 174 / CpE 185 Project Demonstration

Red Light, Green Light

*Squid Game Squad 174*

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For this report, we will show the demonstration of the project we did. The team divided the task into two: coding and hardware setup. For the code, Vigomar Kim Algador and Sam Ho are responsible for generating and writing the code for this project. The FSM code is shown below.

```
typedef enum
{
    Move,
    Stop,
    MD,
    GO
} eSystemState;

//Green A1, Red A3, Sensor A6, Buzzer A4, Button A5
eSystemState GreenLight(void) {
    HAL_GPIO_WritePin(GPIOA, GPIO_PIN_1, GPIO_PIN_SET);
    HAL_Delay(5000);
    HAL_GPIO_WritePin(GPIOA, GPIO_PIN_1, GPIO_PIN_RESET);
    HAL_Delay(100);
    return Stop;
}
eSystemState RedLight(void) {
    HAL_GPIO_WritePin(GPIOA, GPIO_PIN_3, GPIO_PIN_SET);
    HAL_Delay(5000);
    HAL_GPIO_WritePin(GPIOA, GPIO_PIN_3, GPIO_PIN_RESET);
    HAL_Delay(100);
    return Move;
}
eSystemState Motion(void) {
    HAL_GPIO_WritePin(GPIOA, GPIO_PIN_3, GPIO_PIN_SET);
    HAL_GPIO_WritePin(GPIOA, GPIO_PIN_4, GPIO_PIN_SET);
    HAL_Delay(3000);
    HAL_GPIO_WritePin(GPIOA, GPIO_PIN_4, GPIO_PIN_RESET);
    HAL_Delay(1000);
    HAL_GPIO_WritePin(GPIOA, GPIO_PIN_4, GPIO_PIN_SET);
    HAL_Delay(3000);
    HAL_GPIO_WritePin(GPIOA, GPIO_PIN_4, GPIO_PIN_RESET);
    HAL_Delay(1000);
    return GO;
}
eSystemState Finish(void) {
    HAL_GPIO_WritePin(GPIOA, GPIO_PIN_3, GPIO_PIN_RESET);
    HAL_Delay(500);
    HAL_GPIO_WritePin(GPIOA, GPIO_PIN_4, GPIO_PIN_RESET);
    HAL_Delay(100);
    return GO;
}

switch(eNextState)
{
    case Move:
        eNextState = GreenLight();
        break;
    case Stop:
        eNextState = RedLight();
        if (HAL_GPIO_ReadPin(GPIOA, GPIO_PIN_6))
        {
            eNextState = MD;
        }
        else
        {
            eNextState = Move;
        }
        break;
    case MD:
        eNextState = Motion();
        break;
    case GO:
        eNextState = Finish();
        if (HAL_GPIO_ReadPin(GPIOA, GPIO_PIN_5))
        {
            eNextState = Move;
        }
        else
        {
            eNextState = GO;
        }
        break;
}
```

**Figure 1. Relevant Source FSM code**

On the other hand, Shamal Kumar and Dimetree Aburto are responsible for making each component work and building the whole project on a breadboard. Although there are tasks assigned, the group still helps each other back and forth to resolve any problems or difficulties. Below is the full video of the demonstration working.

Video Link: <https://www.youtube.com/watch?v=MsyZ31HNOZA>