Task A

```
#include <Arduino.h>
#include <Wire.h>
#include <Adafruit_GFX.h>
#include <Adafruit_SSD1306.h>
// ---- OLED setup ----
#define screen_WIDTH 128
#define SCREEN_HEIGHT 64
#define OLED_ADDR 0x3C
Ada fruit_SSD 1306
display (Screen_WIDTH, SCREEN_HEIGHT, &Wire, -1)
// ---- Pins ----
#define LED 1 17
#define LED 2 18
#define LED 3 19
#define Mode_BTN 25
#define Reset_BTN 26
// ---- PWM ----
#define PWM_LED30
// ---- constants ----
#define Debounce_Us 50000 // 50 ms
#define OLED_Refresh_Ms 300
// ---- Timers ----
hw_timer_t * debounce Timer Mode = null ptr;
hw_timer_t * debounce Timer Reset = null ptr;
volatile bool debounce Mode Active = false;
Volatile bool debounce Reset Active = false;
Volatile bool mode Event = false;
volatile bool reset Event = false;
// ---- App state ----
int mode = 0;
unsigned long last ATT step = 0;
int alt state = 0;
```

```
// ___ Loop ___
void loop () {
  unsigned long now = millis ();
if (mode Event) {
   mode Event = false;
   mode = (mode + 1) % 4;
  draw OLED ();
}
 if (reset Event) {
    reset Event = false,
     mode = 0;
     set All off ();
     draw OLED ();
  }
   switch (mode) {
  case 0 : set All off () ; Break,
  Case 1 :
     if (now - last Alt step >= 200) {
      alternate step ();
    last Alt step = now;
  }
   Break;
  Case 2  set All on (); break;
  case 3;
    digital write ( LED 1, LOW);
    digital write (LED2, low);
  }
   for ( int v = 255 ; v >= 0 ; -v) {
     if ( mode Event || reset Event) break;
    ledc Write ( PWM_ LED 3, v);
  delay (2) ;
  }
   delay (5) ;
```