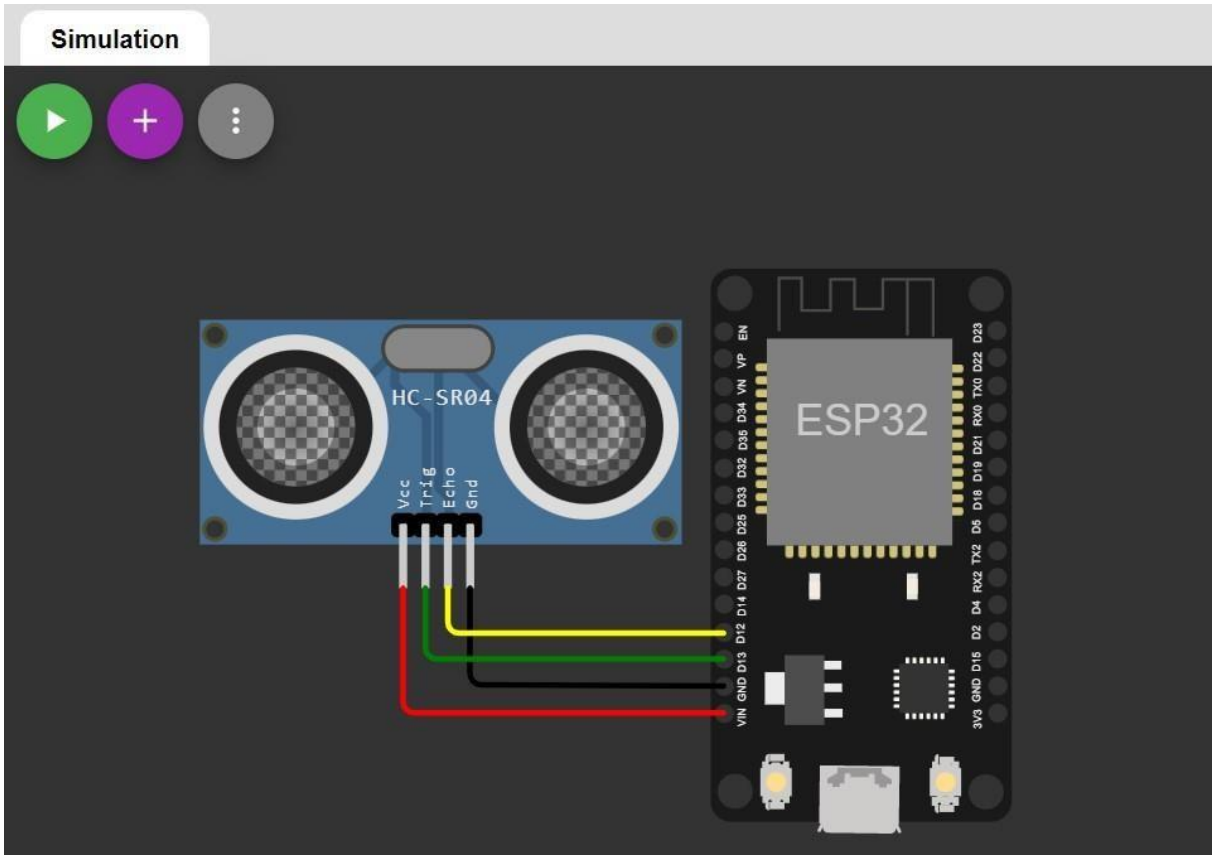
ASSIGNMENT 4

Assignment date	20 oct 2022
Student name	C.jeevan kumar
Student rollno	312819106016
Marks	2 Marks

INPUT:



CODE:

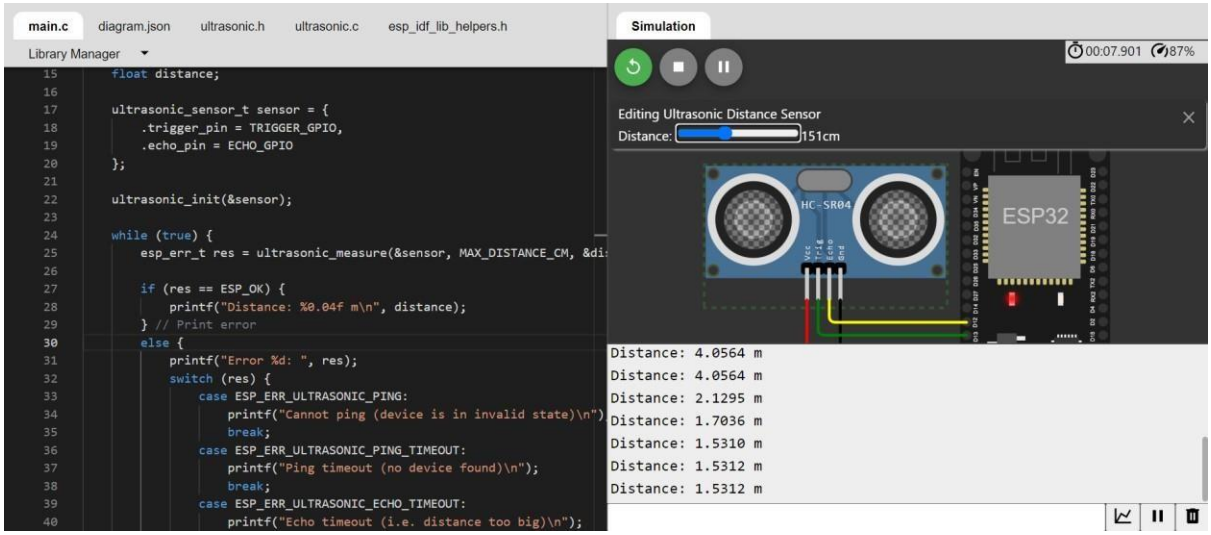
```
#include <stdio.h>
#include <stdbool.h>
#include <freertos/FreeRTOS.h>
#include <freertos/task.h>
#include <esp_err.h>

#include "ultrasonic.h"

#define ECHO_GPIO 12
```

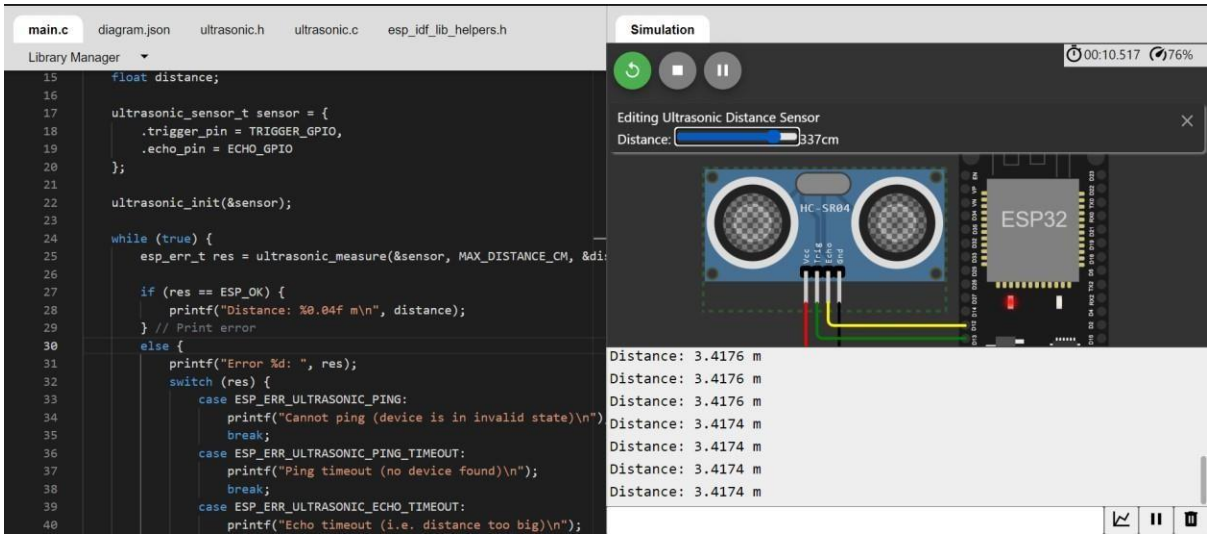
```
#define TRIGGER_GPIO 13
#define MAX_DISTANCE_CM 500 // Maximum of 5 meters
```

```
void ultrasonic_test(void *pvParameters)
{     float
distance;

   ultrasonic_sensor_t sensor = {
.trigger_pin = TRIGGER_GPIO,
       .echo_pin = ECHO_GPIO
   };

   ultrasonic_init(&sensor);

   while  (true)  {                esp_err_t res = ultrasonic_measure(&sensor,
MAX_DISTANCE_CM, &distance);

       if (res == ESP_OK) {
printf("Distance: %0.04f m\n", distance);
       } // Print error         else {
printf("Error %d: ", res);             switch (res) {
case ESP_ERR_ULTRASONIC_PING:
                printf("Cannot ping (device is in invalid state)\n");
break;                  case ESP_ERR_ULTRASONIC_PING_TIMEOUT:
                printf("Ping timeout (no device found)\n");
break;

              case ESP_ERR_ULTRASONIC_ECHO_TIMEOUT:
                printf("Echo timeout (i.e. distance too big)\n");
break;                  default:
```

```
                printf("%s\n", esp_err_to_name(res));
            }
        }

        vTaskDelay(pdMS_TO_TICKS(500));
    }
}

void app_main()
{     xTaskCreate(ultrasonic_test,
"ultrasonic_test",
configMINIMAL_STACK_SIZE * 3, NULL, 5, NULL);
}
```

OUTPUT:




main.c
diagram.json
ultrasonic.h
ultrasonic.c
esp_idf_lib_helpers.h
Library Manager
float distance;
ultrasonic_sensor_t sensor = {
.trigger_pin = TRIGGER_GPIO,
.echo_pin = ECHO_GPIO
};
ultrasonic_init(&sensor);
while (true) {
esp_err_t res = ultrasonic_measure(&sensor, MAX_DISTANCE_CM, &di
if (res == ESP_OK) {
printf("Distance: %0.04f m\n", distance);
} // Print error
else {
printf("Error %d: ", res);
switch (res) {
case ESP_ERR_ULTRASONIC_PING:
printf("Cannot ping (device is in invalid state)\n");
break;
case ESP_ERR_ULTRASONIC_PING_TIMEOUT:
printf("Ping timeout (no device found)\n");
break;
case ESP_ERR_ULTRASONIC_ECHO_TIMEOUT:
printf("Echo timeout (i.e. distance too big)\n");
Simulation
00:10.517
76%
Editing Ultrasonic Distance Sensor
Distance:
337cm
HC-SR04
ESP32
Distance: 3.4176 m
Distance: 3.4176 m
Distance: 3.4176 m
Distance: 3.4174 m
Distance: 3.4174 m
Distance: 3.4174 m
Distance: 3.4174 m