

Assignment -4

Question-1: Write code and connections in wokwi for ultrasonic sensor.
Whenever distance is less than 100 cms send "alert" to IBM cloud and display in device recent events.

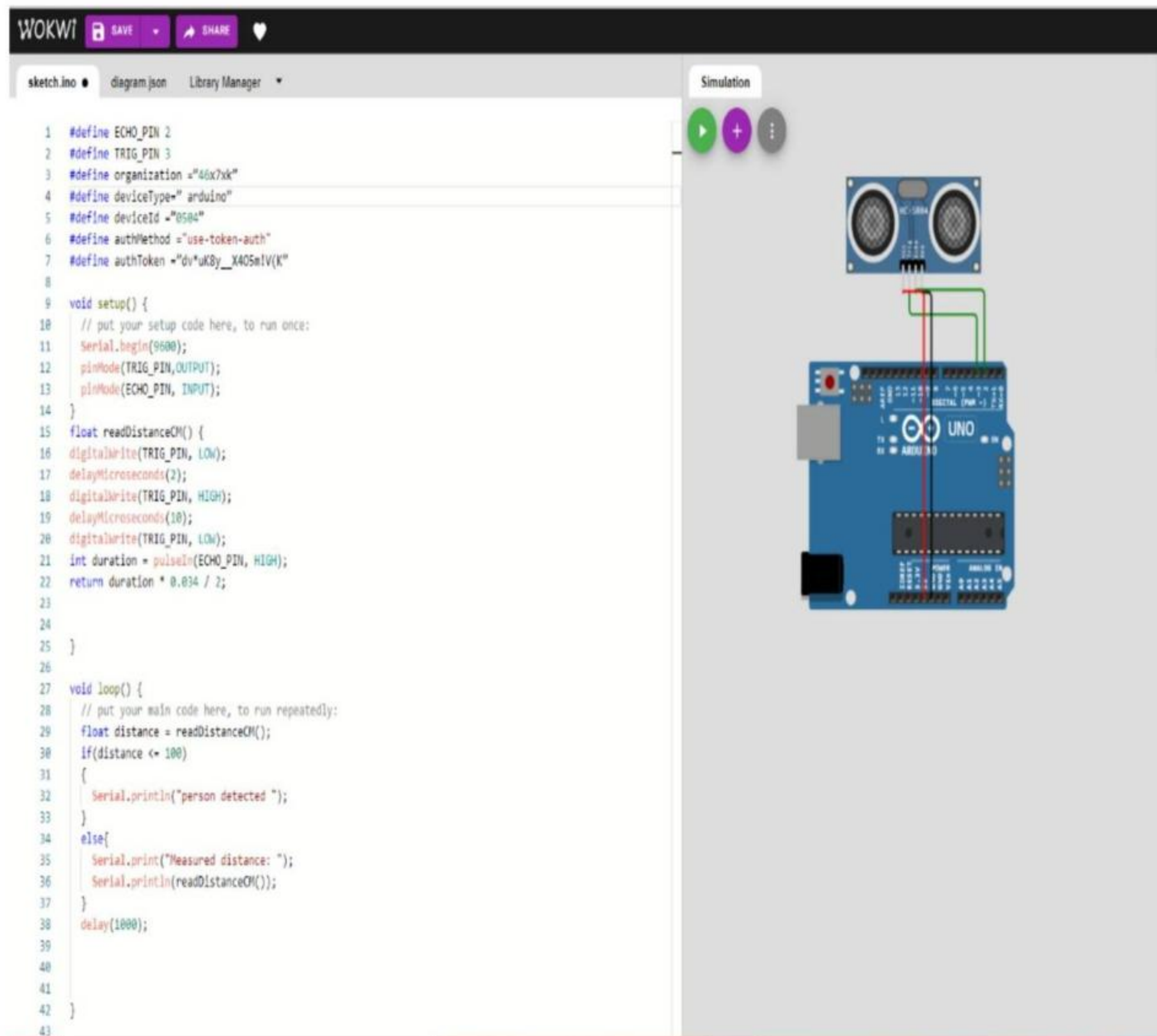
Solution:

```
#define ECHO_PIN 2
#define TRIG_PIN 3
#define organization ="46x7xk"
#define deviceType=" arduino"
#define deviceId ="0504"
#define authMethod ="use-token-auth"
#define authToken ="dv*uK8y__X4O5m!V(K"

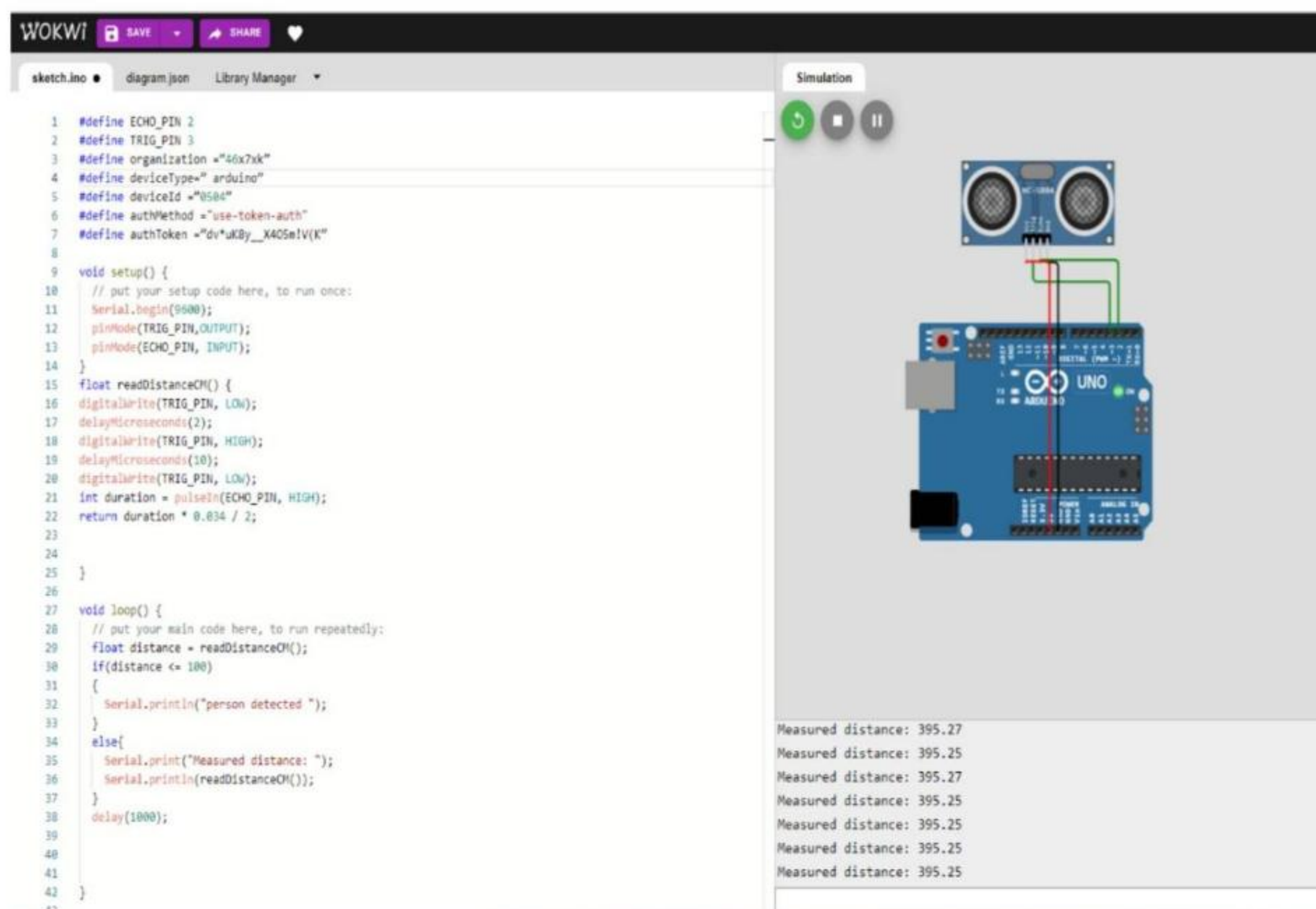
void setup() {
  // put your setup code here, to run once:
  Serial.begin(9600);
  pinMode(TRIG_PIN,OUTPUT);
  pinMode(ECHO_PIN, INPUT);
}

float readDistanceCM() {
  digitalWrite(TRIG_PIN, LOW);
  delayMicroseconds(2);
  digitalWrite(TRIG_PIN, HIGH);
  delayMicroseconds(10);
  digitalWrite(TRIG_PIN, LOW);
```

```
int duration = pulseIn(ECHO_PIN, HIGH);  
return duration * 0.034 / 2;  
  
}  
  
void loop() {  
  // put your main code here, to run repeatedly:  
  float distance = readDistanceCM();  
  if(distance <= 100)  
  {  
    Serial.println("person detected ");  
  }  
  else{  
    Serial.print("Measured distance: ");  
    Serial.println(readDistanceCM());  
  }  
  delay(1000);  
  
}
```

Output:



Wokwi Link: <https://wokwi.com/projects/347484942224065107>

IBM CLOUD

Device Recent Events

The screenshot displays the IBM Watson IoT Platform interface. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. A sidebar on the left contains various icons for navigation. The main content area shows a device named '0504' with a status of 'Disconnected' and a type of 'arduino'. The 'Recent Events' tab is selected, showing a table of events. The table has columns for 'Event', 'Value', 'Format', and 'Last Received'. There are four rows of events, all with the value '{"version":1,"author":"Anonymous maker","edito...}' and the format 'json'. The 'Last Received' column indicates 'a few seconds ago' for each event. At the bottom, there is a status bar showing '3 Simulations running'.

| Event | Value | Format | Last Received |
|---------|---|--------|-------------------|
| event_1 | {"version":1,"author":"Anonymous maker","edito... | json | a few seconds ago |
| event_1 | {"version":1,"author":"Anonymous maker","edito... | json | a few seconds ago |
| event_1 | {"version":1,"author":"Anonymous maker","edito... | json | a few seconds ago |
| event_1 | {"version":1,"author":"Anonymous maker","edito... | json | a few seconds ago |