**Algorithms Analysis**

**Thingspeak Algorithm**

**1. Initialize pin 7 as input pin of Raspberry Pi2**

**2. Setup the GPIO.BOARD**

**3. Get the connection URL from Thingspeak**

**4. Get the API Key value from Thingspeak**

**5. While True do:**

**6. Read the air pollution value from pin 7 for every 2 seconds**

**7. If the read value=0 then do:**

**upload value 0 with the help of URL https://api.thingspeak.com/update?api\_key=T41DJLOIZD14LGEN&field1=0**

**8. else do:**

**i. upload value 1 with the help of URL https://api.thingspeak.com/update?api\_key=T41DJLOIZD14LGEN&field1=1.**

**ii.**

**Algorithm to obtain the location value**

**1. The module geocoder enables us to get the latitude and longitude value using the ip address import this module**

**2. Import the module nominatim. This module enables us to get the address**

**3. Get the ip address using the function ip**

**4. Get the address using the function reverse by passing this ip address**

**Google spreadsheets Algorithm**

**1. Open google developer console**

**2. Create new project and then create credentials and select json format**

**3. Get the connection from Google spreadsheets**

**4. Get the API Key value from Google spreadsheets**

**5. While True do:**

**a. Read the air pollution value from pin 7 for every 2 seconds**

**b. If the read value=1 then do:**

**i. Update the latitude value and longitude value and address location with the help of api keys**

**c. scope=['https://spreadsheets.google.com/feeds']key="-----BEGIN PRIVATE KEY-----\\nMiievgIBADANBgkghkiG9w0BAQEFAASCBKgwggSkAgEA$PRIVATE KEY-----\\n"**

**6. Close the connection**

**6.2 Code**

**Thingspeak code**

**Fig 6.1 Code to upload to thingspeak**

**• Intialize the Raspberry board to GPIO configuration**

**• Assign an input pin to the sensor**

**• If the air is polluted then Rpi detects the raise in concentration and uploads the values into Thingspeak.**