Arduino Coding:

```
#include <Wire.h>

#include <LiquidCrystal_I2C.h>  //I2C pins declaration

LiquidCrystal_I2C lcd(0x27, 16, 2);

#include <SoftwareSerial.h>

SoftwareSerial gprsSerial(7, 8);  //7-->>Tx, 8-->Rx

#include "dht.h"

dht DHT;

#include <DS3231.h>

DS3231  rtc(SDA, SCL);

Time t;

int LDR = A0;        //analog pin for LDR sensor

int IR = 3;          //digital pin for IR sensor

#define DHT11_PIN 2    //digital pin for DHT11 sensor

int smokeA0 = A1;        //analog pin for mq sensor

int trigPin = 9;        // water Utrasonic

int echoPin = 10;

int Relay1 = 4;  //light

int Relay2 = 5;  //relay for water pump

int Relay3 = 6;  //relay for cooling fan

int Relay4 = 11;   //relay for exhaust fan for Humidity control

//int Relay4 = 7;  //relay for exhaust fan for Ammonia gas control

int Relay5 = 12;    //relay for feeder control

int Relay6 = 13;    //relay for Cleanliness DC Moter control

const int OnHour1 = 19;    //light time 1

const int OnHour2 = 20;

const int OnHour3 = 4;    //light time 2

const int OnHour4 = 5;

void setup() {

 lcd.begin();                    //Defining 16 columns and 2 rows of lcd display

 lcd.backlight();                //To Power ON the back light

 lcd.setCursor(0,0);            //Defining positon to write from first row,first column .
```

```
lcd.print(" Smart Poultry ");       //You can write 16 Characters per line .
delay(1000);
lcd.setCursor(0,1);            //Defining positon to write from second row,first column .
lcd.print(" SSPM's COE ");
delay(1000);
gprsSerial.begin(19200);
Serial.begin(19200);
Serial.println("Config SIM900...");
delay(2000);
gprsSerial.flush();
Serial.flush();
gprsSerial.println("AT+CGATT?");
delay(100);
toSerial();
gprsSerial.println("AT+SAPBR=3,1,\"CONTYPE\",\"GPRS\"");
delay(2000);
toSerial();
lcd.clear();
lcd.setCursor(0,0);
lcd.print("Connect Network");
delay(1000);
lcd.setCursor(0,1);
lcd.print("Connect GPRS");
delay(1000);
gprsSerial.println("AT+SAPBR=3,1,\"APN\",\"bsnlnet\"");
delay(2000);
toSerial();
gprsSerial.println("AT+SAPBR=1,1");
delay(2000);
gprsSerial.println("AT+SAPBR=2,1");
delay(2000);
toSerial();
```

```arduino
  rtc.begin();

  pinMode(Relay1, OUTPUT);

  digitalWrite(Relay1, LOW);

  pinMode(Relay2, OUTPUT);

  pinMode(trigPin, OUTPUT);

  pinMode(echoPin, INPUT);

  pinMode(3,INPUT);  //DHT11 input

  pinMode(Relay3, OUTPUT);

  pinMode(Relay4, OUTPUT);

  pinMode(Relay5, OUTPUT);

  pinMode(Relay6, OUTPUT);

  pinMode(smokeA0, INPUT);

  pinMode(LDR, INPUT);

  pinMode(IR, INPUT);

}

void loop() {

  t = rtc.getTime();

lcd.clear();//Clean the screen

lcd.setCursor(0,0);

lcd.print("Time:");

lcd.setCursor(6,0); //clm,row

lcd.print(t.hour);

lcd.setCursor(8,0);

lcd.print(":");

lcd.setCursor(9,0);

lcd.print(t.min);

lcd.setCursor(11,0);

lcd.print(":");

lcd.setCursor(12,0);

lcd.print(t.sec);

lcd.setCursor(0,1); //date

lcd.print("Date:");
```

```
lcd.setCursor(6,1); //clm,row

lcd.print(t.date);

lcd.setCursor(8,1);

lcd.print(":");

lcd.setCursor(9,1);

lcd.print(t.mon);

lcd.setCursor(11,1);

lcd.print(":");

lcd.setCursor(12,1);

lcd.print(t.year);

delay(2000);

lcd.clear();//Clean the screen

lcd.setCursor(0,0);

lcd.print("collecting");

lcd.setCursor(4,1);

lcd.print("Data...");

delay(2000);

/*humadity and temperature & MQ gas sensor*/

int d = DHT.read11(DHT11_PIN);   //humadity and temperature

Serial.print("Temperatur=");

Serial.println(DHT.temperature);

Serial.print("Humidity = ");

Serial.println(DHT.humidity);

int dt1=DHT.temperature;

int dt2=DHT.humidity;

String Act1;

    Act1="FanOff";

String Act2;

    Act2="ExhFanOFF";

 if(dt1>=41)

 {

   digitalWrite(Relay3, HIGH); //cooling fan relay on

    Serial.println("cooling fan on");
```

```arduino
       Act1="FanOn";
   }
   else
   {
     digitalWrite(Relay3, LOW); //cooling fan relay off
      Act1="FanOff";
   }
    Serial.println(Act1);


int sensorThres = 400;   //mq sensor 100
  int analogSensor = analogRead(smokeA0);
int dt3=analogSensor-50;
  Serial.println(dt3);
  if (dt3 > sensorThres||dt2>=75)  //  if (analogSensor-50 > sensorThres)
  {
  digitalWrite(Relay4,HIGH);
  Serial.println("Exhaust fan on");  //exhaust fan relay on
    Act2="ExhFanON";
  }
   else
   {
     digitalWrite(Relay4, LOW); //exhaust fan relay off
        Act2="ExhFanOFF";
   }
      Serial.println(Act2);
/*Light   */
int dt4 = analogRead(LDR);
String Act3;
Serial.println("Luminicity=");
Serial.print(dt4);

if(t.hour==8||t.hour==9||t.hour==10||t.hour==11||t.hour==12||t.hour==13||t.hour==14||t.hour==15
||t.hour==16||t.hour==17||t.hour==18)
```

```
      {
      if (dt4>=400)
      {
       digitalWrite(Relay1, HIGH);
       Serial.println("LIGHT ON");
       Act3="LightOn";
      }
      else
      {
       digitalWrite(Relay1,LOW);
       Serial.println(" LIGHT OFF");
         Act3="LightOFF";
      }
      }
      else
      {
      if(t.hour == OnHour1 || t.hour == OnHour2||t.hour == OnHour3 || t.hour == OnHour4)
      {
       digitalWrite(Relay1,HIGH);
       Serial.println(" LIGHT ON");
         Act3="LightOn";
         lcd.clear();//Clean the screen
lcd.setCursor(0,0);
lcd.print(" LIGHT ON");
lcd.setCursor(0,1);
lcd.print(t.hour);
lcd.setCursor(4,1);
lcd.print(Act3);
delay(60000); //1 min
       }
      else
      {
       digitalWrite(Relay1,LOW);
```

```arduino
    Serial.println(" LIGHT OFF");
      Act3="LightOFF";
  }
  }
    Serial.println(Act3);
 /*Water level  */
long duration, distance;     //Ultrasonic code
int dt5;
String Act4;
  digitalWrite(trigPin,HIGH);
  delayMicroseconds(1000);
  digitalWrite(trigPin, LOW);
  duration=pulseIn(echoPin, HIGH);
  distance =(duration/2)/29.1;
  Serial.print(distance);
  Serial.println("CM");
  delay(2000);
 if(distance<=5)
 {
   digitalWrite(Relay2, LOW);
    Act4="PumpOff";
   Serial.println(Act4);
   dt5=100;
    Serial.println(dt5);
}
if(distance>=6&&distance<=10)
 {
   dt5=75;
  Serial.println(dt5);
   Act4="PumpOff";
}
if(distance>10&&distance<=13)
 {
```

```
      dt5=60;
   Serial.println(dt5);
    Act4="PumpOff";
 }
 if(distance>13&&distance<=16)
  {
    dt5=45;
   Serial.println(dt5);
    Act4="PumpOff";
 }
 if(distance>=17)
 {
    digitalWrite(Relay2, HIGH);
    dt5=40;
    Serial.println(dt5);
    Serial.println("MOTER ON");
     Act4="PumpOn";
     lcd.clear();//Clean the screen
lcd.setCursor(0,0);
lcd.print(" PumpOn");
lcd.setCursor(0,1);
lcd.print(dt5);
lcd.setCursor(4,1);
lcd.print(Act4);
    delay(75000);          //give delay for fill up the water tank
   digitalWrite(Relay2, LOW);
  }
     Serial.println(Act4);
/* Cleanliness System */
 String Act5="ProcessOFF";
 if(t.hour == 1&& t.min==1 || t.hour == 6&& t.min==1 || t.hour == 7&& t.min==1 ||t.hour == 13&&
t.min==1 ||t.hour == 19&& t.min==1  )
 {
```

```arduino
   digitalWrite(Relay6,HIGH);
     Act5="ProcessON";
lcd.clear();//Clean the screen
lcd.setCursor(0,0);
lcd.print(" Cleaning ");
lcd.setCursor(2,1);
lcd.print(Act5);
  delay(120000);
  digitalWrite(Relay6,LOW);
 }
  else
  {
   digitalWrite(Relay5,HIGH);
  // Serial.println(" Cleanliness Moter Off");
    Act5="ProcessOFF";
 }
    Serial.println(Act5);
/* IR sensor  */
 int detect = digitalRead(IR);   // read obstacle status and store it into "detect"
   String Act6="FeederEmpty";
 if(detect == LOW){
  Act6="FeederFull";
  digitalWrite(Relay5,LOW);
  Serial.println("Feeder is Full");
 }else{
  Act6="FeederEmpty";
  digitalWrite(Relay5,HIGH);
lcd.clear();//Clean the screen
lcd.setCursor(0,0);
lcd.print(Act6);
lcd.setCursor(1,1);
lcd.print(ProcessOff);
  delay(120000);
```

```arduino
      Serial.println("Feeder Getting full");

   }

    gprsSerial.println("AT+HTTPINIT\r");

  delay(2000);

  toSerial();

String str="AT+HTTPPARA=\"URL\","
"http://anajiprojects.000webhostapp.com/project/wdata.php?dt1=";

  String url = str  + dt1+"&Act1="+ Act1+ "&dt2="+ dt2+ "&dt3="+ dt3+ "&Act2="+ Act2+ "&dt4="+
dt4+"&Act3="+ Act3+ "&Act2="+ Act2+ "&dt5="+ dt5+ "&Act4="+ Act4+ "&Act5="+ Act5;

   Serial.println(url);

  gprsSerial.println(url);

delay(2000);

Serial.println("SEND DATA...........");

lcd.clear();//Clean the screen

lcd.setCursor(0,0);

lcd.print("GPRS sent Data...");

delay(2000);

  toSerial();

  gprsSerial.println("");

  // set http action type 0 = GET, 1 = POST, 2 = HEAD

  gprsSerial.println("AT+HTTPACTION=0\r");

  delay(6000);

 toSerial();

  gprsSerial.println("");

  gprsSerial.println("AT+HTTPTERM\r");

  toSerial();

  delay(300);

  gprsSerial.println("");

delay(2000);

lcd.clear();//Clean the screen

lcd.setCursor(0,0);

lcd.print("Temperature(C)");

lcd.setCursor(0,1);
```

```
lcd.print(dt1);

lcd.setCursor(4,1);

lcd.print(Act1);

delay(2000);

lcd.clear();//Clean the screen

lcd.setCursor(0,0);

lcd.print("Humidity(%)");

lcd.setCursor(0,1);

lcd.print(dt2);

lcd.setCursor(4,1);

lcd.print(Act2);

delay(2000);

lcd.clear();//Clean the screen

lcd.setCursor(0,0);

lcd.print("Gas Level(PPM)");

lcd.setCursor(0,1);

lcd.print(dt3);

lcd.setCursor(4,1);

lcd.print(Act2);

delay(2000);

lcd.clear();//Clean the screen

lcd.setCursor(0,0);

lcd.print("water level(%)");

lcd.setCursor(0,1);

lcd.print(dt5);

lcd.setCursor(4,1);

lcd.print(Act4);

delay(1000);

lcd.clear();//Clean the screen

lcd.setCursor(0,0);

lcd.print("Feeder is ");

lcd.setCursor(0,1);

lcd.print(Act6);
```

```
  delay(2000);

  lcd.clear();//Clean the screen

  lcd.setCursor(0,0);

  lcd.print("Light is ");

  lcd.setCursor(0,1);

  lcd.print(dt4);

  lcd.setCursor(4,1);

  lcd.print(Act3);

  delay(2000);

  lcd.clear();//Clean the screen

  lcd.setCursor(0,0);

  lcd.print("Cleanning ");

  lcd.setCursor(0,1);

  lcd.print(Act5);

  delay(2000);

  lcd.clear();

  lcd.setCursor(0,0);

  lcd.print(" Smart Poultry ");

  lcd.setCursor(0,1);

  lcd.print("SSPM Dairy Clg");

  delay(5000); //1min wait*/

  }

  void toSerial()

  {

   while(gprsSerial.available()!=0)

   {

    Serial.write(gprsSerial.read());

   }

  }



  ********************************************************************************
```

Fetch Data from Database:

checklogin.php:

```php
<?php
function check_login()
{
if(strlen($_SESSION['login'])==0)
        {
                $host=$_SERVER['HTTP_HOST'];
                $uri  = rtrim(dirname($_SERVER['PHP_SELF']), '/\\');
                $extra="index.php";
                $_SESSION["login"]="";
                header("Location: http://$host$uri/$extra");
        }
}
?>
```

data1.php:

```php
<?php
session_start();
include("checklogin.php");
check_login();
?>
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="utf-8">
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
  <meta name="viewport" content="width=device-width, initial-scale=1">
  <meta name="description" content="">
  <meta name="author" content="">
  <title>Project || LIVE status </title>
  <link href="assets/css/bootstrap.min.css" rel="stylesheet">
  <link href="assets/css/heroic-features.css" rel="stylesheet">
```

```html
<style>
table {
 font-family: arial, sans-serif;
 border-collapse: collapse;
 width: 100%;
}
 th {
 border: 1px solid #dddddd;
 text-align: center;
 padding: 10px;
}
td{
 border: 1px solid #dddddd;
 text-align: center;
 padding: 8px;
}
tr:nth-child(even) {
 background-color: #dddddd;
}
</style>
</head>
<body>
  <nav class="navbar navbar-inverse navbar-fixed-top" role="navigation">
    <div class="container">
      <div class="navbar-header">
        <button type="button" class="navbar-toggle" data-toggle="collapse" data-target="#bs-example-navbar-collapse-1">
          <span class="sr-only">Toggle navigation</span>
          <span class="icon-bar"></span>
          <span class="icon-bar"></span>
          <span class="icon-bar"></span>
        </button>
        <a class="navbar-brand" href="index1.php">Welcome</a>
```

```html
        </div>
        <div class="collapse navbar-collapse" id="bs-example-navbar-collapse-1">
          <ul class="nav navbar-nav">
            <li>
              <a href="#"><?php echo $_SESSION['login'];?></a>
            </li>
            <li>
              <a href="logout.php">Logout</a>
            </li>
          </ul>
        </div>
      </div>
    </nav>
    <div class="container">
      <header class="jumbotron hero-spacer">
        <h3>Live Environment Status of Poultry Farm</h3>
<?php
include("dbconnection.php");
if (!$con)
{
die("Connection error: " . $con->connect_error);
}
$result= mysqli_query($con,"SELECT * FROM data ORDER BY Date_Time DESC");
        echo "<table>";
        echo "<tr>";
        echo "<th>Date & Time</th>";
        echo "<th>Temperature</th>";
    echo "<th>Action</th>";
        echo "<th>Humidity</th>";
        echo "<th>Ammonia Gas Level</th>";
    echo "<th>Action</th>";
    echo "<th>Light</th>";
    echo "<th>Action</th>";
```

```php
    echo "<th>Water Level</th>";

    echo "<th>Action</th>";

    echo "<th>Cleaning</th>";

    echo "</tr>";
while ($row = mysqli_fetch_array($result))
{
        echo "<tr>";

        echo "<td>".$row['Date_Time']."</td>";

        echo "<td>".$row['dt1']."</td>";

        echo "<td>".$row['act1']."</td>";

        echo "<td>".$row['dt2']."</td>";

        echo "<td>".$row['dt3']."</td>";

        echo "<td>".$row['act2']."</td>";

        echo "<td>".$row['dt4']."</td>";

        echo "<td>".$row['act3']."</td>";

        echo "<td>".$row['dt5']."</td>";

        echo "<td>".$row['act4']."</td>";

        echo "<td>".$row['act5']."</td>";

        echo "</tr>";
}
echo "</table>";
?>
    </header>
  </div>
</body>
<script src="assets/js/jquery.js"></script>
  <script src="assets/js/bootstrap.min.js"></script>
</html>
```

****

Upload data to database:

```php
<?php
define('DB_SERVER','localhost');

define('DB_USER','id8498692_project');

define('DB_PASS' ,'project@123');

define('DB_NAME', 'id8498692_project');

$con = mysqli_connect(DB_SERVER,DB_USER,DB_PASS,DB_NAME);


if (mysqli_connect_errno($con))

{

    echo "Failed to connect to MySQL: " . mysqli_connect_error();

 }


date_default_timezone_set('Asia/Kolkata');

$date = date('d/m/Y h:i A');


$sql = "INSERT INTO data (Date_Time, dt1, act1, dt2, dt3, act2, dt4, act3, dt5, act4, act5) VALUES
('$date','".$_GET['dt1']."','".$_GET['Act1']."','".$_GET['dt2']."','".$_GET['dt3']."','".$_GET['Act2']."','".$_GET['dt4']."','".$_GET['Act3']."','".$_GET['dt5']."','".$_GET['Act4']."','".$_GET['Act5']."')";   // Execute SQL
statement

         if (!mysqli_query($con,$sql))

     {

     die('Error: ' . mysqli_error($con));

     }

   mysqli_close($con);

?>


*******************************************************************************
```