INTRODUCTION:

In today's environmental system, many parameter measurements are required to monitor and control for the good quality and productivity of plants. But to get the desired results there are some very important factors which come into play like Temperature, Humidity, Light and Water, which are necessary for a better plant growth. Keeping these parameters in mind I havebuilt an Automatic Controlling and Monitoring System over GSM module using MC . This system is very efficient for growing good quality plants. The other important part of this project is that it is fully automatic.

These days GSM Module is widely used in in this system. Here in this project by using GSM Module we can keep information about the effects of climate on plants. The system shall also demonstrate climatic changes which affects the plant in its productivity and quality etc. The main purpose of coming up this project is to build an Automatic system Monitoring in which GSM module sends the information about Temperature, Humidity,Light intensity, Soil moisture and status of appliances (Fan, Sprays, Artificial Lights and Waterpump) that are connected with circuit for controlling Green House effects or Green House parameters (Temperature, Humidity, Light intensity and Water supply for plants).

OBJECTIVES:

- Main objective is to develop automatic control and monitoring system using sensors and GSM model.
- The system proposed this smart technology to provide plants and trees the required nourishment from the sunlight and to prevent the same from the harmful effects.
- In today's greenhouse, many parameters measurements are required to monitor and control for the good quality and production of plants.
- By using sensors, switched transistors and relay nodes to provide ambient conditions as required for the effective growth of plants in the greenhouse.
- To implement a system that uses low power wireless components, which is easy to install and to make a system more efficient by linking GSM with it.

BLOCK DIAGRAM:

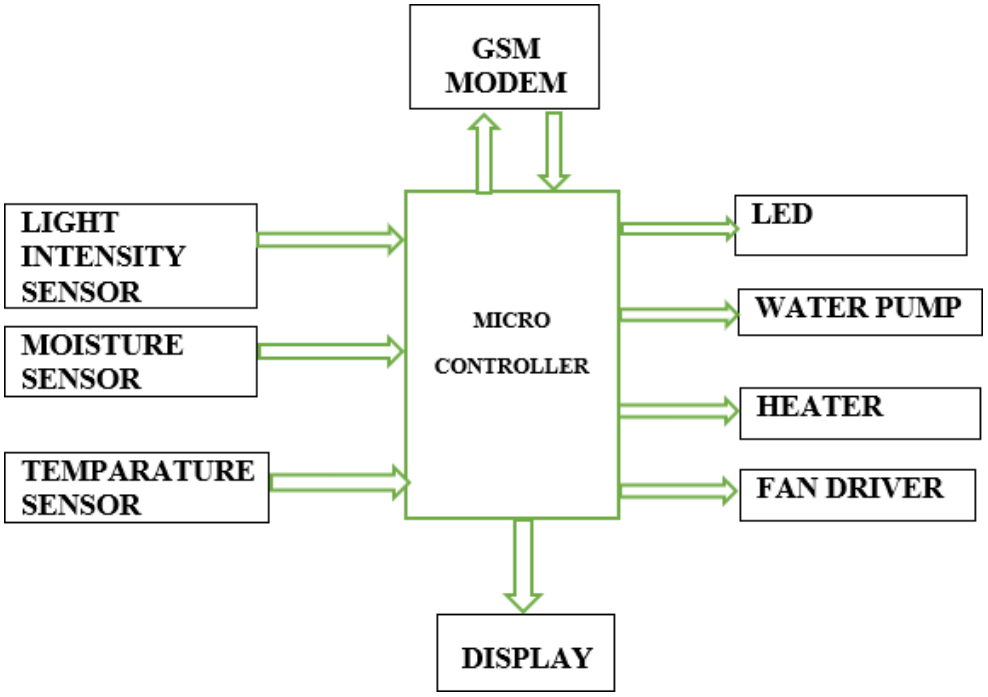


Fig 1. Block diagram of system

SYSTEM DESCRIPTION:

The brain of the system, micro controller continuously reads the output of different sensors to decide the operation perform based on which the status of water pump motors and heaters will operates. The humidity sensor gives relative humidity in the surroundings. This gives hints about the water content in the air. The soil probes act as continuity testers for the soil and indicates the dampness of the soil. The temperature sensor monitors the heat in the surrounding area. Depending upon these data, the micro controller decides whether to turn on the heaters or the water pumps and operating simultaneously along with this continuous reading of temperature and humidity is checking, Once the user requires the status of the system he can readily sends the desired codes to the GSM modem in the system accept the code and reads the code, if it is desired code as we loaded in the microcontroller unit then it reply backs the user with the status of the temperature, humidity, fan and heater.

The above block diagram is consisting of following components:

SENSORS:

- Light detecting sensor.
- Temperature sensor.
- Water and moisture content detector.

CONTROLLERS:

- Fan for controlling the heat.
- Water pump for moisture controlling.
- Heat up bulb or lamp used as a sun light.

OUTPUT DISPLAY:

- Virtual terminal (VSM).

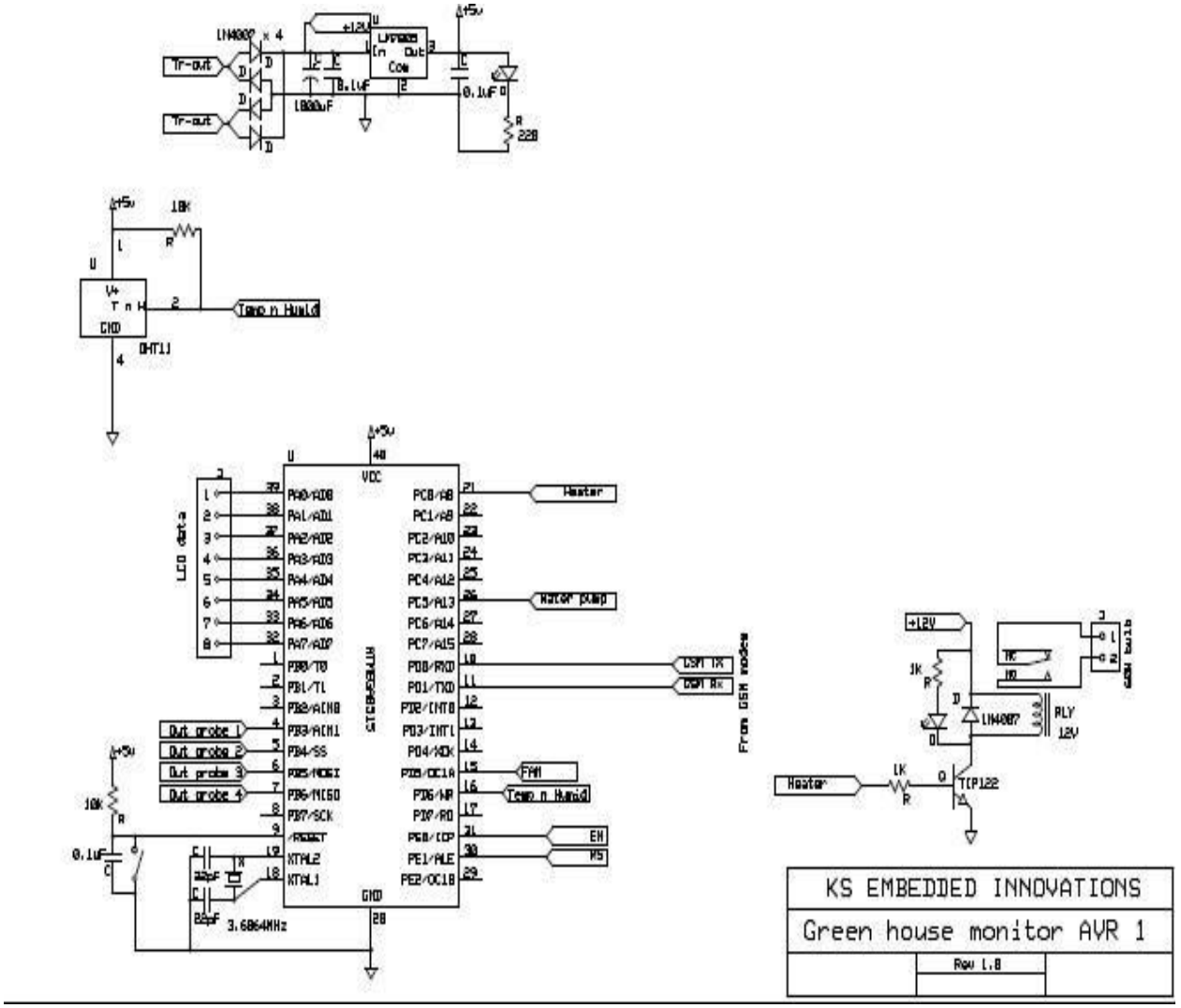


Fig 10. Circuit diagram

RESULTS:

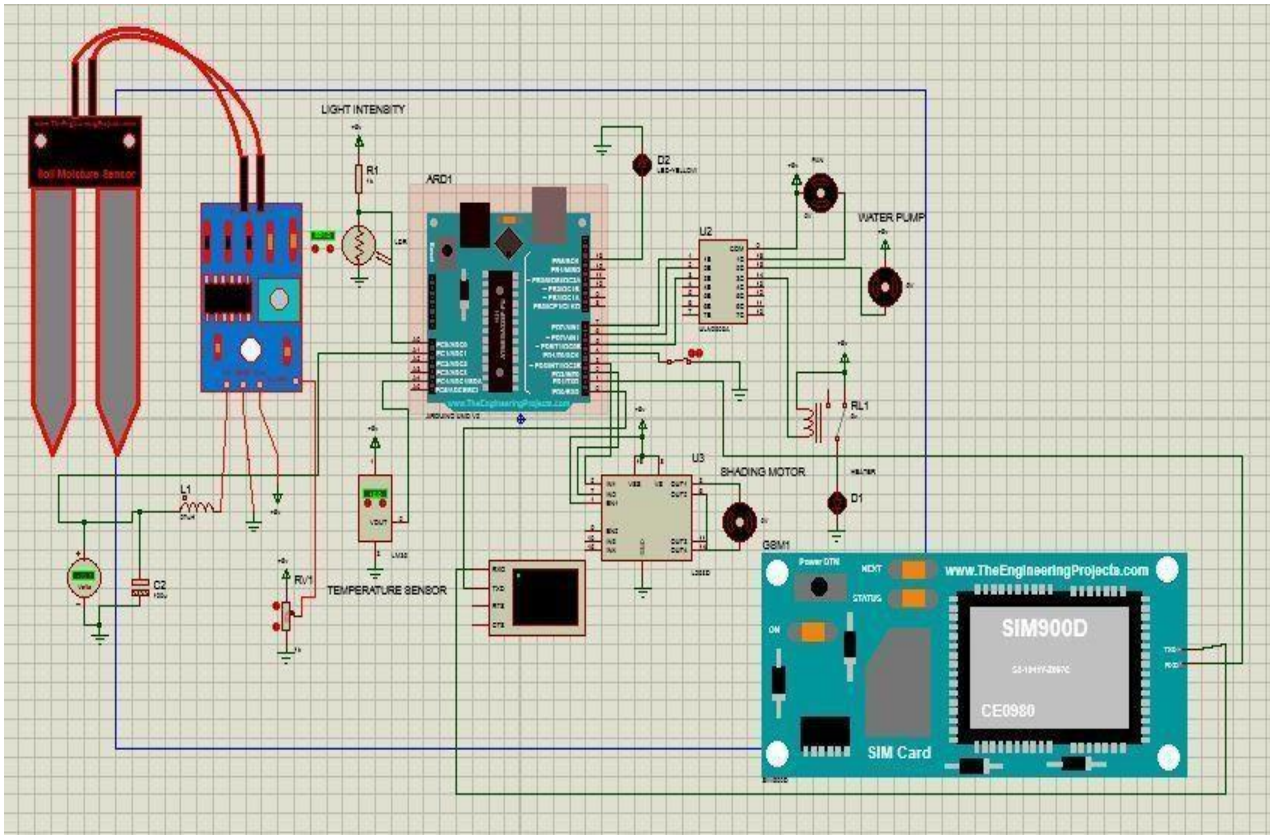


Fig 11. Simulation circuit

Set values to run demo model by programmer:

- Temperature set value is 20 degree

  If the temp<= 20, this is COLD condition, the system will Turn on the Heater.

  If the temp>20, this is HOT condition, the system will Turn ON the FAN

- Light intensity set value is 500 (LDR)

  If LDR Status <= 500, this is BRIGHT condition, the system will Turn off the LED.

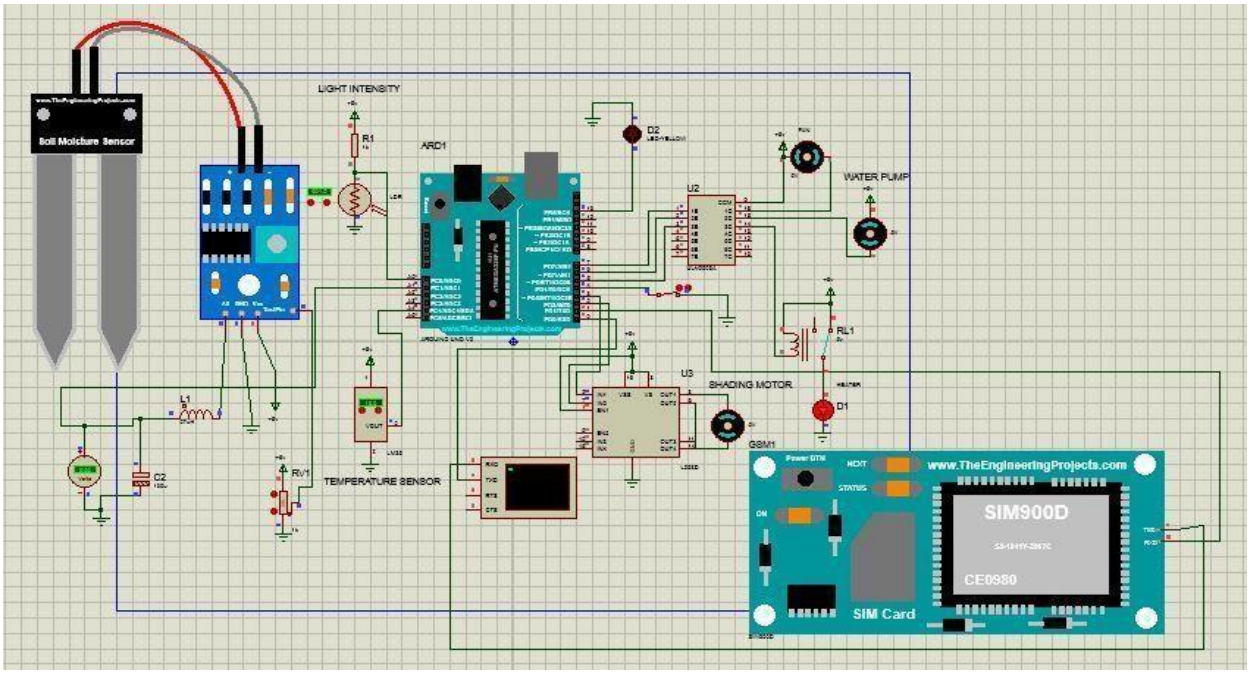
  if LDR status>500.this is DARK condition, the system will Turn on the LED.

- Moisture level set value 400

  If moisture Status <= 400, this is LOW Water level condition, system will Turn ON the Pump.

  If moisture status>400, this is high water level condition, system will turn off the pump.

Simulation result case 1:



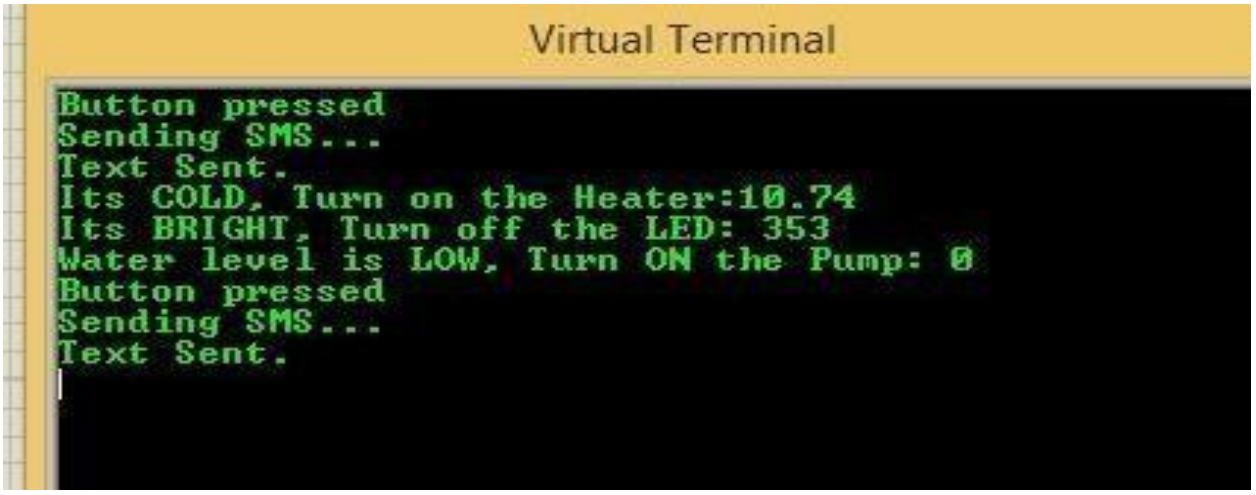
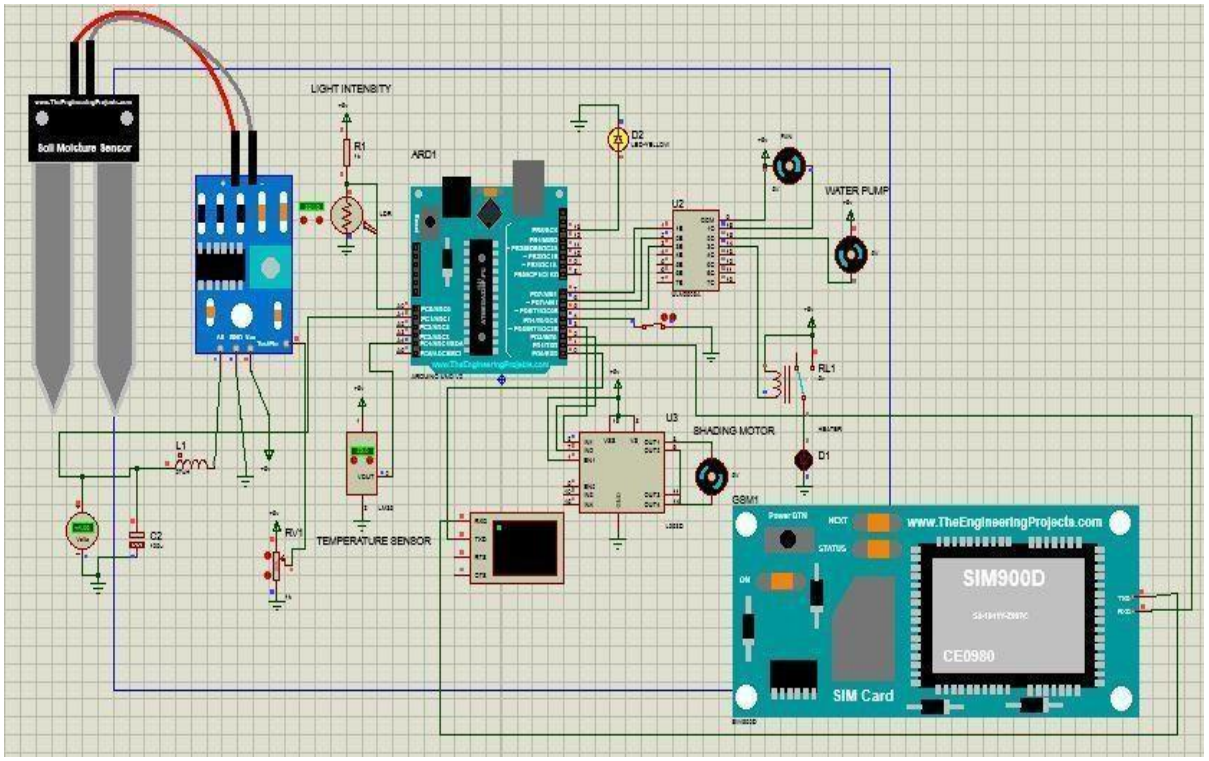


Fig 12. Simulation result CASE 1

Case 1 description:

- In this case the temp<20 i.e.10.74 this is cold condition so that the system will send signal to the heater to turn on.as shown in fig the heater is on shown in red colour.
- The light intensity is less then 500 i.e. 353, as set in program its bright condition so the LED is in off condition.
- The moisture status is zero, so the system send signal to motor pump to turn on.

Simulation result case 2:



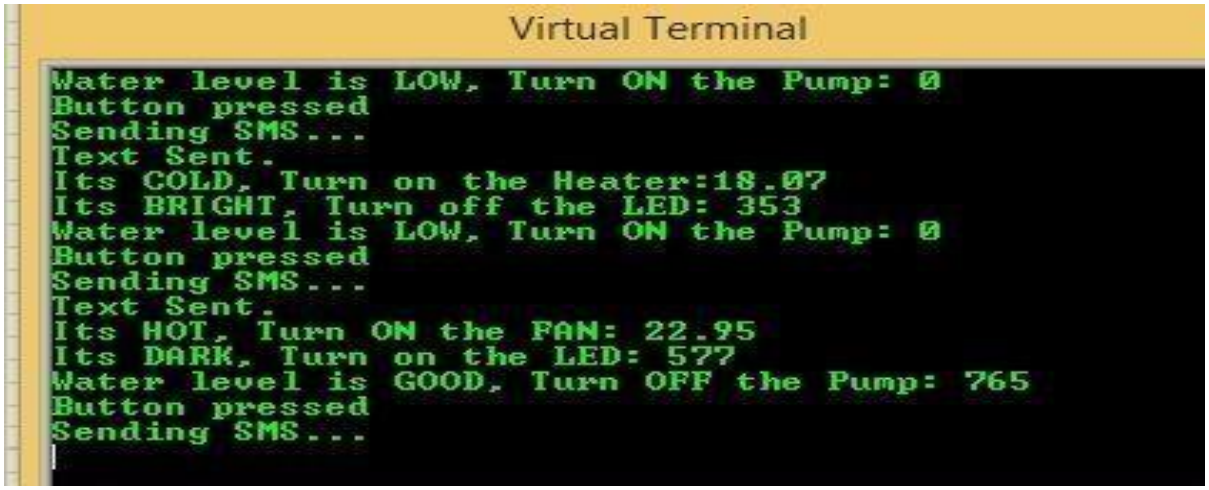


Fig 13. Simulation result CASE 2

Case 2 description:

- In this case the temp>20 i.e.18.07 this is hot condition so that the system will send signal to the heater to turn off.
- The light intensity is >500 i.e. 577, as set in program its dark condition so the LED will glow.
- The moisture status is >400 so water level is good, so the system send signal to motor pump to turn off.

Advantages and application:

1. Can be used in green houses to control the temperature, soil moisture, humidity and light for the proper growth of plants
2. With little modification, this project can be used in Mechanical companies to measure various parameters of operating machines like temperature and light.
3. Temperature monitoring and controlling action can be used in home or various halls like conference room, seminar hall to control the temperature of room