

# **DESIGN AND CONSTRUCTION OF A GREENHOUSE AND HOME AUTOMATION SYSTEM**

## **ABSTRACT**

The proposed system is an embedded system which monitors and controls the microclimatic parameters of a greenhouse on a regular basis for cultivation of crops or specific plant species which could maximize their production over the whole crop growth season and to eliminate the difficulties involved in the system by reducing human intervention to the best possible extent. The system comprises of sensors, microcontroller, relays and output components . When any of the above mentioned climatic parameters cross a safety threshold which has to be maintained to protect the crops, the sensors sense the change and the microcontroller processes these data and performs the required action encoded in the instructions.

## **PROBLEM STATEMENT**

The presence of shocks like drought, plant disease, temperature, and weedin Ghanaian farms has cost Ghanaian famers a huge lost. Also, the availability of only one growing period in the Ghana's highest agro-ecological zones that is the guinea savannah is also posing a threat to the agricultural sector of the country's economy.

## **PROJECT DELIVERABLES**

The inputs and outputs of the proposed system is listed below

Inputs:

- Soil sensor.
- Temperature sensor
- Moisture sensor
- Sim900 module
- Arduino uno microcontroller
- YW robot power supply
- 12 volts battery
- Flexible wires

## Outputs

- Liquid crystal display
- Fan
- Bulb
- Submersible pump

## **CONCLUSION**

The embracement of greenhouse farming will make it possible to create an artificial climate for the plants in an enclosed area thereby overcoming most of these problems . The greenhouse agriculture when automated will go a long way to reduce cost and manpower and also quickly respond the need of the plant.

The designed system will be able to check the temperature and to cool the greenhouse room temperature. The system will also be able to check the soil moisture and to water the crops. the system will also be able to switch on light in the dark and to warm the room temperature also.