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INTEGRATION OF GREENROOF AND SOLAR PHOTOVOLTAIC SYSTEM

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ABSTRACT --*Modern agriculture uses different types of greenhouse system. Green roof and solar photovoltaic systems are two technologies that could contribute to sustainable building development and reduction of greenhouse gas emission. The production of healthy crops and improved quantity can be succeeding through these two technologies. The growth of plant is controlled by the environmental condition like temperature, humidity and moisture through the system we can able to protect the crops from insects, weather conditions and diseases and also the green house will be reduce all the short coming for unhealthy seasonable crop and power consumption possible by solar power.*

Keywords—*integration, greenroof, solar, photovoltaic.*

I. INTRODUCTION

Modern world is controlled by the automation. Green roofs and solar photovoltaic systems are two technologies that could contribute to sustainable building development and reduction of greenhouse gas emissions. When they are combined, it can enhance the functions and effectiveness by cooling and shading effects. Modern agriculture uses different types of greenhouse system. The production of healthy crops and improved quantity can be succeeding through greenhousesystem. The growth of plant is controlled by the environmental conditions like temperature, humidity and moisture through the system. Here we introduce rainwater and solarpower as the source of energy. Alerts systemactivated for the parameters like temperature, water level and moisture in accordance with the level

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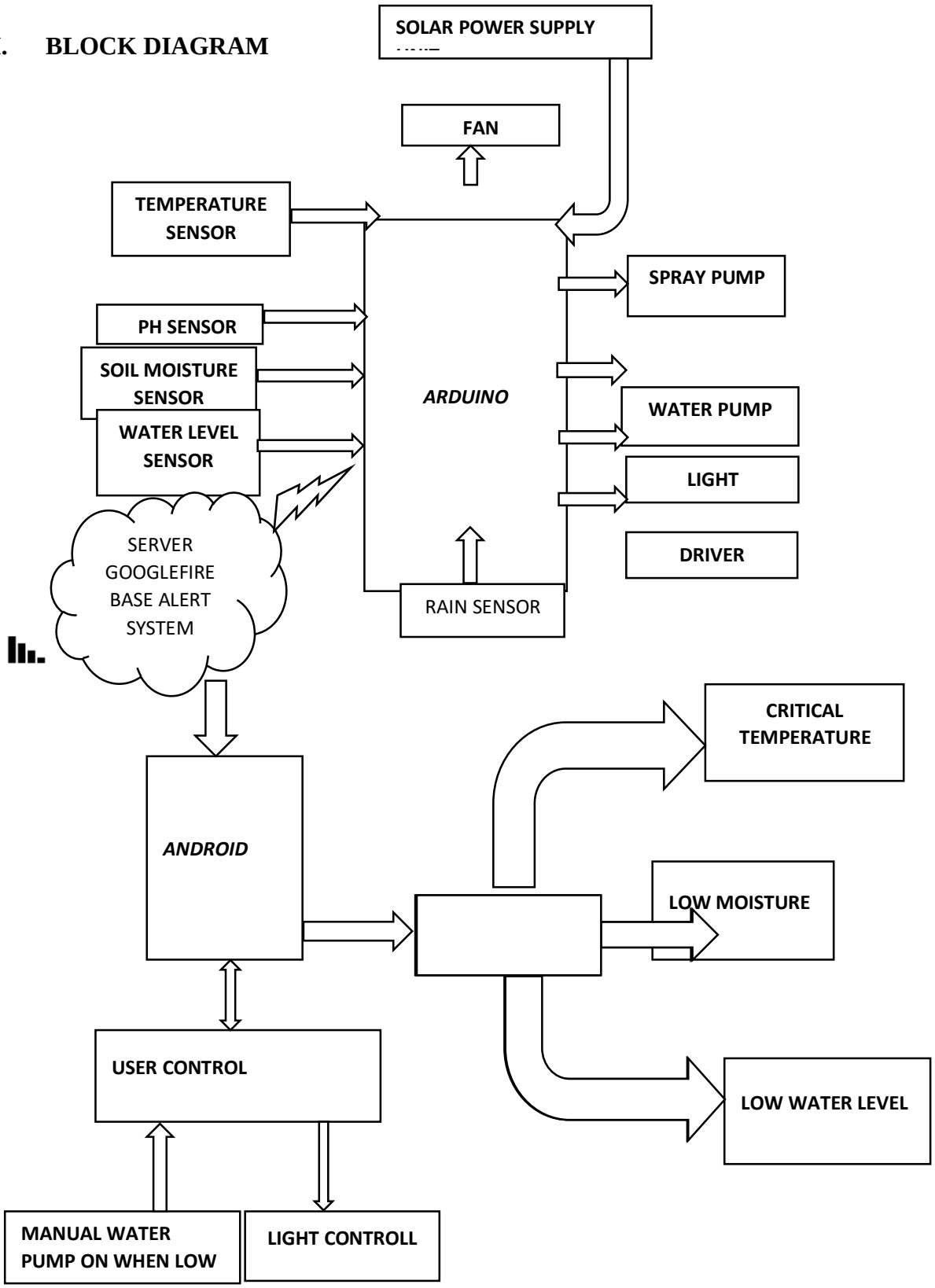
II. BLOCK DIAGRAM



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III. WORKING

Water level sensor is used to measure the level of water in the tank. It helps to detect and indicate the level of water as percentage. When the water level is below the predefined level, alerts will be sent to the user through android application. Similarly, when the tank is full.it will gives an alert to the user.The sensor device available are integrated with Arduino board is very useful. The settings needs series of observations and study inter dependency of various parameters such as temperature, humidity and sunlight intensity. Arduino board makes easy to install Solar panel is mounted at the roof of the green house and it connected to the battery. The battery charged by solar power. All devices (except pump) are operated in 12V DC supply from battery.

In this system, Arduino microcontroller place a major role by controlling and monitoring the roof gardening system

Inputs are connected to the I/O port of the controller. Soil moisture sensor is used to measure water content in soil. This is working under the principle of dielectric. Sensor will fix in soil. When the soil moisture level is low, sensor should give signal to the controller and the sprayer will actuated. If moisture level is attained maximum value sprayer will stopped. In this method, we control the required water level for crops.

Humidity sensor (HYGROMETERS) is used to measure the water content in atmosphere Humidity level maintenance is important for healthy crops, so we control humidity by using sprayer. The sprayer is used to spray water in spray form. It will maintain humidity.

Temperature sensor is used to measure temperature in the roof garden. It is used to maintain certain level of temperature in the roof garden. Whenever the temperature is high, then the sprayer is actuated to reduce temperature. If the temperature is low then artificial light will glow to increase the temperature. In our project, we maintain temperature at optimum level submersible pump is used to increase discharge of water from tank.

Rainwater harvesting systems capture rainwater by directing it from pipes which is attached to the roof to an underground tank or over ground holding tank. The harvested water is then pumped directly to a header tank. These are detected by the rain sensorSo, there is no human resource is needed to monitor and irrigate the field. Though maintaining optimum conditions in roof garden yield of the crop is increased.

IV. CONCLUSION

The primary application of this project is for farmers and gardeners who do not have enough time to water their crops /plants. It also covers those farmers who are wasteful of water during irrigation. The project can be extended to roof gardening where manual supervision is far and few in between. The principle can be extended to create fully automated gardens. Combined with the principle of rainwater harvesting, it could lead to huge water saving if applied in the right manner. The roof gardening control system for desired con and maintain the system. The system employment in test roof garden is studied implies need of poly house structure study,inside and outside study, crop need etc. Simply controlling given parameters is not enough. DC supply can be given in the form of a battery bank easy to charge with solar system. There are limitations in terms of seasonal measurements and crop needs. The user awareness of how to check system operation is basic need to be fulfilled.

V. ADVANTAGES

- Increases the involvement of modern people in agriculture.
- Reducing the use of electricity.
- Increase the yield of crops.
- Famers can concentrate on other business side by side.
- Decrease the production cost by labour and power supply.
- Wastage of water is avoided.
- Crops get constant and required amount of water.

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