

LATEST ADVANCES IN MODERN GREENHOUSE TECHNOLOGY

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Abstract. The article describes the significance of smart greenhouses in the life of both an ordinary person and any production. It highlights the main parameters of modern greenhouses cultivation process.

Keywords: Greenhouse Automation System, climatic condition parameters, measure of soil moisture.

Technologies have reached every branch of economy. One of the specified sectors where this technology has created great impact is Green House, as we call it. Modern technologies are used to monitor certain environmental condition which is a must to ensure optimum growth of plants in green house, enhanced crop productivity along with proper utilization of water and other resources.

These conditions variables must be well defined and the data regarding soil conditions, and climatic condition parameters that affects the plant development, must be carefully collected through automated processes. Doing so makes it possible to obtain large number of data at high frequency with less number of human assistance involved. Though the PC and SMS - based systems are proven suitable to keep the user updates with the greenhouse status, multiple factors make it not worth of investments we make. These factors include expensive prices, bulky size, maintenance issues and useless to unskilled workers.

So it is necessary to try out “Greenhouse Automation System / Automated Greenhouse” and make things work in a way applicable with less amount of physical as well as economical investment. The only focus of this project is to develop such a system/device which is structure-wise much simpler yet easy to install and cheaper. Thus, the project “Greenhouse Automation System / Automated Greenhouse” has employed easily available component like microcontroller as its chief element that is used to monitor and collect the varying greenhouse details such as: temperature recordings, measure of soil moisture and sunlight, at different instants of time. Doing so will obviously assist in maintaining the green house and promote the productivity [1].

The reason why the use of microcontroller in this project is much appreciated is also because of its low power consumption and reasonable cost

besides easy availability. The fact that microcontroller works through a real-time phenomenon adds extra pile to its benefit. It interacts with multiple sensors associated with the project “Greenhouse Automation System / Automated Greenhouse” in a real-time basis and keeps control of lighting, aeration and drainage functions accordingly as per the requirement of the crops by triggering corresponding devices which can be: a cooler, fogger, dripper and lights etc.

Since this project keeps track of real-time data, use of an integrated Liquid Crystal Display (LCD) is not an exception. LCD displays those collected data and forwards the data to a remote computer through serial transmission process. There, a complete process of data logging maintenance occurs. Software can be updated in regular time interval which further extends the flexibility of this project to meet the user requirements.

All this features combined as a whole produces an easy, cost effective, portable and easy maintenance alternative for greenhouse applications, beneficial for small scale agriculture sectors in remote areas.

The idea not only enhances the greenhouse cultivation process and productivity, but it also reduces the human effort invested and prevailing issues to a greater extent. In this project, simple components like sensors, microcontroller, ADC (Analog to Digital Converter), actuators are employed which makes it more cost-effective [2].

At ordinary conditions, the system “Greenhouse Automation System / Automated Greenhouse” remains active monitoring the climatic condition, as soon as the sensor fitted at several spots start detecting variation in the continuously monitored factors like changes in temperature, the project compares it with the threshold value set in the program and takes necessary actions. In technical words, when sensor detects changes, the microcontroller gets activated and it reads data collected from sensor at its input terminal. By then, the ADC already converts the analog data into presentable digital form. As per the requirement, microcontroller triggers corresponding relays to settle the environmental conditions and those parameters reach the best possible state.

The use of microcontroller, LCD display and continuous data logging process make this project more cost-effective and user-friendly at the same time. Hence, this project completely eradicates the necessity of setting-up the environmental conditions through effort and offers flexible system.

In conclusion I would like to emphasize that greenhouses still play a vital role in global food production. Having helped to cultivate indoor crops for thousands of years, it's safe to say this age-old growing technique will be around for many years yet. Thanks to advances in technology, the humble glasshouse can now be transformed into a precisely-controlled growing environment that farmers can rely on to achieve improved yields and profits.

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FARM MACHINERY LEASING PROSPECTS

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Abstract. The article describes the main options for farm machinery purchase. It highlights the main types and advantages of farm machinery leasing.

Keywords: lease, regular payments, dealer, balance sheet, flexibility, payment schedules.

Farm machinery purchase option – buying, leasing, renting, or hiring has advantages and disadvantages. While the vast majority of farm machinery is still acquired for cash or with a conventional loan, leasing is also a popular choice. Both farm machinery manufacturers and independent companies offer lease opportunities.

When acquiring agricultural machinery for a farm, there are many factors that need to be taken into consideration. You need to spend time assessing the worth of the machine you are thinking about buying in order to determine whether it is going to be truly profitable. If you believe it is, you then it's necessary to compare all of the machines and brands against one another. This can be an extensive process when considering the huge variety of machines and farming brands available today. Nonetheless, before taking all of this into account, the first thing to decide, is whether you should lease the machine or purchase it outright.

There is no overall right or wrong answer when it comes to this choice. Most farm owners tend purchasing farm equipment. It's because they have ownership of the machine and have something to show for the money spent. Farm managers use equities or will borrow money to finance machine pur-