

Automatic Green House

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科別:**Applied Science**

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Purpose of the research

The purpose of this project is to take care of any kind of plants by watering and protecting them with the help of an automatic system, which produces great advantages over other techniques that are currently used. One of them is that it is very easy to operate, since a single operator can control the watering and fertilizing systems from a computer. And another advantage is that you could actually program it to work at a specific time

automatically, making sure the plants get the enough water and fertilizer they need. Also this project helps save water because you only use the water needed for watering the plants, and if some plants do not use all the water, it gets filtered and then used again thanks to a water recycling system that is part of the project. With the plant protection system we hope to facilitate the work in special areas dedicated to the care and protection of plants and try to help nature by reforesting our planet.

Procedures

The Automatic Greenhouse is very easy to use since it is operated by interfase, this means that you can operate it from its PC, the programs functions, as well as the program itself is easy to understand, so you will not have a problem with its basic movements, with this clear, you should check all filters and bombs, make sure that they are clean an free of any residue, and if needed, you should change the filters, after this, do not forget to turn on the computer. After turning on the prototype, you can enter the program through a direct access in the PC, or you could enter Qbasic and find it there. Once this is done you will be at the programs main menu, from here you can choose to either, water all three plants at a same time, or just water two of them, or mix and match, this depending on the type of plants you will be taking care of. Remember that the automatic greenhouse has a great amount of versatility, this because it does not limit you to just watering the same type of plant, you can have a different variety of these and give each of them the special care they need, because not all plant groups are taken

care of the same way. When you are finished with the irrigation process just press the F7 key on the keyboard and you will exit the program.

Data

The plant protection system is formed by a automatic rail system, two pumps for the watering system, 3 storage units for the plants and a ventilation system that is part of the prototypes outer shell, this one made of acrylic. The automatic system is formed with two rails for the horizontal movement (left and right), and an arm to move the shower back and forth. Each one of the rails moves with a stepper motor, which are special motors that you can program to move to a precise distance. The watering system uses two suction pumps, one for the water and another for the fertilizer, sending the liquids trough hoses and to the showerhead to be sprayed to the plants. The plants containers will be placed in a way that the rails can move left or right and positions it self on top of any of them and the arm can move back and forth.

All of the equipment used can be controlled by a personal computer (pc). The computer communicates with the prototype through an interface and a q-basic program that controls each command the prototype executes.

Conclusions

With this project you can apply technology in the care of plants to help improve our environment, you optimize water in

the process, this thanks to the recycling system, and you simplify the various chores greenhouse workers carry out.

You also help the preservation of life, this by strengthening the photosynthesis process from which all life depends on. And last but not least, you put your part in reforesting this once green earth.

Gas sensor. There are two of them; one is located next to the flames and the other one in the nearest gas tube to the source. Whenever the gas starts to escape, these sensors will automatically close both of the valves, avoiding accidents and deaths by inhalations of gas. With all the advantages the project is very complete and useful, and when it comes to safety it's very cheap, because it's better to spend a little more to be safe.