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Lunar Exploration (2)
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# INTELLIGENT GREENHOUSE FOR LONG MISSIONS ON THE MOON

**Abstract**

Crop production is a function of the expression of factors that occur naturally in the environment and the distribution of the climate in time and space. Given that the conditions are different for crops on the moon, a comprehensive use of resources and reducing risks in production must be considered, which is why it is necessary to develop methodologies that integrate temperature factors, the substrate, the chosen plant and the interactions that help the plant in this type of agriculture. As a result, this work proposes an autonomous greenhouse with the use of telematic, artificial intelligence and automation, which aims to obtain a good quantity and quality of crops successfully, this in turn will allow better resource management, an important point since in the moon any resource is limited. Making use of artificial intelligence and various sensors to monitor possible pests or growth problems in addition to using production models and algorithms that evaluate variables such as water balance, hydrogen potential, potential evapotranspiration, plant size, correct rooting, foliage, maturity indices and estimated cutting time for consumption. In addition to the controlled use of heating systems, CO2 dosage, controllable LED lamps, irrigation and RGB cameras to monitor the vegetation indices that indicate the health and well-being of the vegetation Finally of all this, we will be able to obtain the amount of plants necessary for consumption in the time that they are necessary, since if there is a problem with the crops, these can be detected in time and can be replaced for the best use of resources, the Proposed plants are the quelite, spinach radish and lettuce, because in addition to their short growth time they are highly nutritious for consumption.