



International Journal of Multidisciplinary Research in Science, Engineering and Technology

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)



Impact Factor: 8.206

Volume 8, Issue 5, May 2025



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Drip Irrigation Semi-Automatic Machine

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ABSTRACT: Drip irrigation is one of the important area which affects the livelihood of farmers directly. In this paper a survey is carried out far the drip irrigation to be using electronic devices. The drip irrigation system will mcrease the productivity ofthe crop Fertilizers used in irrigation are recommended by various agriculture univerzities will help the farmer to mcrease the productivity Increasing the productivity of different crops soil and water contains are more important. Day by day the rainfall goes on decreasing, to zave the water for irrigation drip irrigation is important tool in future.Agriculture is an important area, which affects livelihoods of a significant promotion of the country's population apart from ensuring food security The major problems are rapidly declined growth in productivity ity of food grains, shrinking water resource, declining soil health. Technology is a prime movement of productivity in agriculnus where natural resources are fixed. In agriculture accounts for use of 80% of annual available fresh water, is save and utilized it is more important. Precision faming is emerging as one of the important areas that benefits. India has a can be improving agricultural benefit a great potential to implement such technology: Balanced use of major and micro nutrients to maintain an organic carbon status through soil test based nutrients management is to be formed.

KEYWORDS: crop, productivity, drip irrigation, embedded system

I. INTRODUCTION

Agriculture is an important area, which affects livelihoods of a significant promotion of the country's population apart from ensuring food security The major problems are rapidly declined growth in productivity ity of food grains, shrinking water resource, declining soil health. An increasing demands of agriculture, industry and population's need, rising levels of pollution. The amual rainfall of 3840 Billions Cubic Meters (BCM), water availability estimates vary between 1123 BCM to 654 BCM. providing evaporate transpiration losses (uncertain) Curent consumption is estimated at 634 BCM Futue requiremets by 2025 as estimated by mumistry of water resources are 1093 BCM.

The 60% of ground water drawn is used for migation and mostly through deep tube wells. This over exploitation pattern is inccessing ground water pollution and drinking supply to the villages.The uses of new micro-urigation technolo technologies are to be optimizing water use for crop consumption at crop root zone and soil leaching Modern tools like embedded system and space technology are highly relevant in monitoring large irrigation commands

Quality of human life, particularly that of poor and vulnerable sections depends upon natural environment and its endowments, whi which support their livelihoods . as it can provide opportunities for improving access to energy, particularly for dispersed communities in rural and semote areas

Agriculture water productivity required is the challenge of sustainability, it is to be addressed satisfactory. The expansion of agriculture land due to increasing demand for food and loss of arable land due to over intensive cultivation is one of the greatest threat to forest, wetlands, mountains and biodiversity To reduce.

II. METHODOLOGY

1. System Design
2. Component Selection
3. Assembly and Installation
4. Testing and Calibration



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5. Maintenance

Construction

To construct a semi-automatic drip irrigation machine project, you'll need a water source, filtration, pressure regulation, and a controller with sensors to automate the system, allowing for efficient and targeted irrigation.

Here's a breakdown of the key components and steps involved:

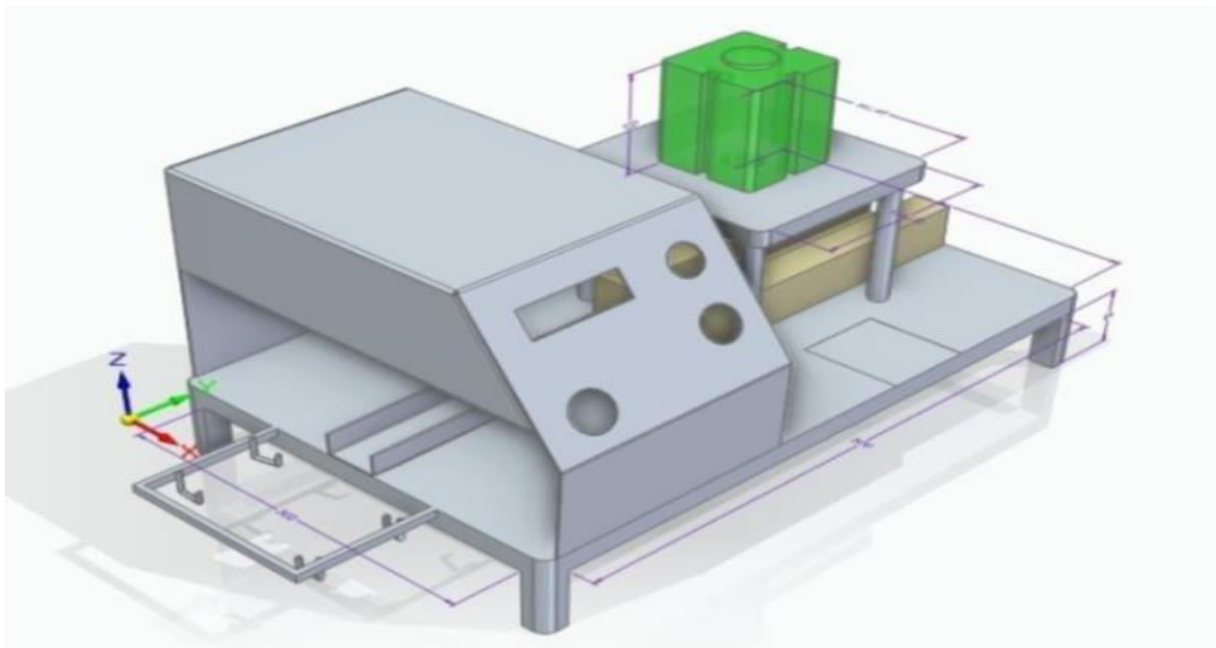


Fig no7.2 Image of Project



Fig. Image of pneumatic cylinder



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Fig. Image of Drip

Components

1. Structure 2pcs –
2. 16x2 LCD display 1pcs –
3. Sencer 1pcs –
4. Cylinder 1pcs –

Working Principle:

1. Sensor Monitoring:
Soil moisture sensors continuously monitor soil moisture levels.
2. Data Processing:
The control unit receives data from the sensors and determines if irrigation is needed based on Pre-set parameters.
3. Pump Activation:
When the soil moisture falls below a certain threshold, the control unit activates the pump to Deliver water to the field.
4. Water Delivery:
Water flows through the mainline and distribution tubing to the emitters, which deliver water Slowly and precisely to the plant roots.
5. Data Logging:
Some systems can log data about irrigation events, allowing for monitoring and optimization of Irrigation practices.
6. Water Savings:
Drip irrigation systems are known for their efficiency, delivering water directly to the root zone

III. CONCLUSION

Semi-automatic drip irrigation machine project, by leveraging automation and precise water delivery, shows promise for efficient water management, increased crop yields, and reduced labor costs, making it a valuable tool for sustainable agriculture. Here's a more detailed look at the potential benefits and considerations: Benefits of Semi-Automatic Drip



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Irrigation:

Water Conservation:

Drip irrigation systems, especially when automated, deliver water directly to the plant roots, minimizing water loss through evaporation and runoff.

Enhanced Crop Yields:

By providing plants with a consistent and precise amount of water, drip irrigation promotes healthy growth and can lead to higher yields.

Reduced Labor Costs:

Automation allows for irrigation scheduling and management, reducing the need for constant manual intervention.

Improved Fertilizer Efficiency:

Drip irrigation allows for targeted fertilizer application, ensuring that nutrients are delivered directly to the plant roots, reducing waste and environmental impact.

Weed Control:

By keeping the soil surface dry, drip irrigation can help reduce weed growth, further improving crop health and yield.

Reduced Pest and Disease:

Minimizing water contact with plant foliage can help reduce the risk of certain pests and diseases.

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