

# Chapter 1

## Introduction

### 1.1 Project Definition

In the fast-paced world of today, many individuals struggle to maintain their plants due to demanding schedules or frequent travel. Traditional methods of plant care, such as manual watering, require daily attention, which can be impractical for those with busy lifestyles. As a result, plants often suffer from neglect, leading to dehydration or death due to inadequate watering. This challenge is particularly pronounced among apartment dwellers and individuals who travel frequently, as reliable plant care is not always accessible.



Fig no 1.1 Manual Watering of Plants

Although automatic plant watering systems exist, they typically rely on external water sources, which may not be available in regions affected by water scarcity. This dependence on external supplies presents an additional hurdle for individuals who are mindful of water conservation. Therefore, there is a critical need for a self-sustaining solution that can autonomously water plants without requiring constant manual intervention or access to external water supplies.

This project introduces the development of an innovative Automatic Plant Watering System powered by an Atmospheric Water Generator (AWG). By utilizing a refrigeration cycle, the system captures and condenses atmospheric moisture, converting it into water for automatic

irrigation. The key innovation of this system lies in its ability to generate water independently from the environment, making it particularly advantageous in water-scarce regions and for users seeking sustainable plant care solutions. Additionally, the system monitors soil moisture levels to ensure plants receive optimal watering, promoting healthy growth without the need for human involvement.

## **1.2 Project Objectives**

The objectives of this project are as follows:

- To develop a compact and energy-efficient system that automatically waters plants by generating water from atmospheric moisture using AWG technology.
- To store and distribute water effectively using a soil moisture sensor that triggers irrigation when necessary.
- To ensure consistent and autonomous plant care without requiring human intervention, making the system ideal for households or places where water resources are scarce.
- To simplify the process of plant watering, reducing dependency on external water supplies and offering an eco-friendly solution to maintaining healthy plants.