

GROWEASY(IDT - B1)

Problem Statement

Many urban residents in India have access to rooftops where they grow decorative plants and flowers, but very few are able to successfully grow vegetables due to limited space, irregular watering, and lack of proper monitoring systems. Manual watering and care make rooftop vegetable gardening time-consuming and inconsistent, resulting in poor growth or plant death – discouraging people from cultivating fresh vegetables at home.

Project Team



RAVENCLAW

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Solution

To help middle-class families grow vegetables easily on their rooftops, we developed a smart, space-efficient gardening system that blends hardware, software, and design innovation. The hardware uses an Arduino-based automatic watering setup with a soil moisture sensor that detects dryness, a relay-controlled mini water pump for irrigation, and a DHT11 sensor to monitor temperature and humidity, all powered by a 9V battery or USB. This ensures plants are watered consistently without manual effort. The GrowEasy app allows users to monitor plant health, check soil moisture, and control watering manually if needed, while its AI assistant “Veggie” provides care tips, schedules, and guidance for growing vegetables. For efficient use of rooftop space, we created modular 3D-printed stackable plant boxes designed on Onshape. These lightweight units support vertical farming and include compartments for sensors and drip outlets, making rooftop vegetable gardening simple, smart, and accessible.

