



## Department of Electronics & Telecommunication Engineering

# Innovative Teaching and Learning in Electronic System Design Course

Electronics System Design involves the creation and development of electronic devices and systems that meet specific functional requirements. This field combines principles from electrical engineering, computer science, and design to create systems that range from simple circuits to complex integrated devices used in everyday applications

**Teaching Innovation:** Teaching innovation in Electronics System Design is crucial for preparing students to meet the rapidly evolving demands of the electronics industry. Traditional methods of instruction, while foundational, must be supplemented with innovative approaches to enhance student engagement, practical understanding, and creativity in design. This involves integrating modern tools, real-world problem-solving, and collaborative learning into the curriculum.

**Benefits:** It makes learning more interesting and helps students develop important practical skills. Maximizes hands-on learning time, promotes active learning, and allows for more personalized instruction. They also learn how to troubleshoot and solve problems, which are essential skills in the field of electronics.

### ➤ Automatic Water Dispenser

The **Automatic Water Dispenser** is a project aimed at designing a hands-free water dispensing system that activates when a container is detected and automatically stops when the container is either removed or filled to a specified level. This project aligns with the Electronics System Design course, demonstrating practical applications of sensor technology and automation.

It is used to provide easy access to drinking water. Water dispensers have become a necessary part of society. In this system we use a proximity switch which is connected to a relay which controls the water solenoid which acts as a valve to control the water flow to the tap.

The water dispensers that we use in our daily life are mechanically operated.

## Department of Electronics & Telecommunication Engineering

- **Problem Statement:** Developing an Automatic Water Dispenser to eliminate providing a convenient, hygienic, and efficient solution for water dispensing in various settings.
- **CIRCUIT DIAGRAM**

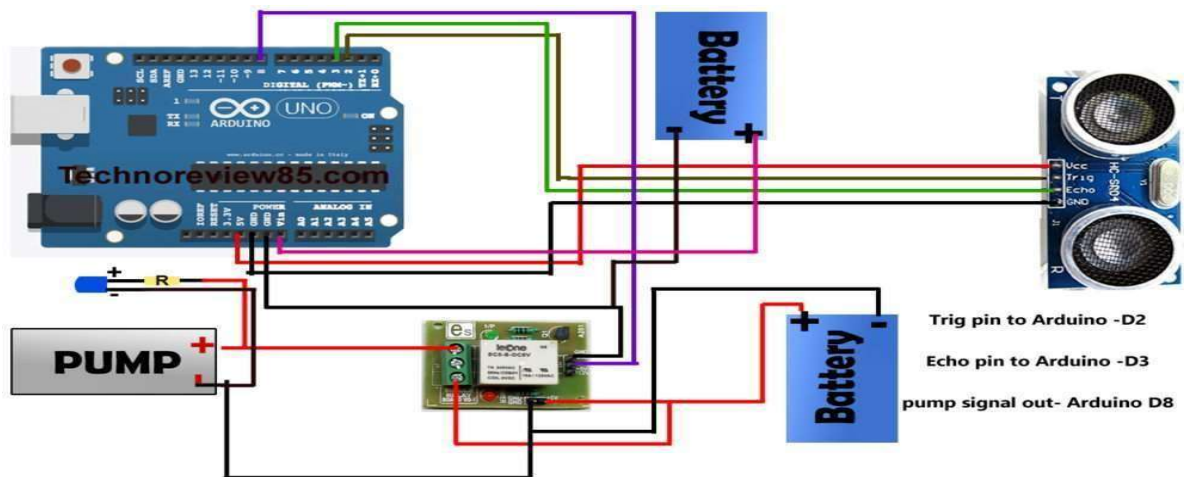
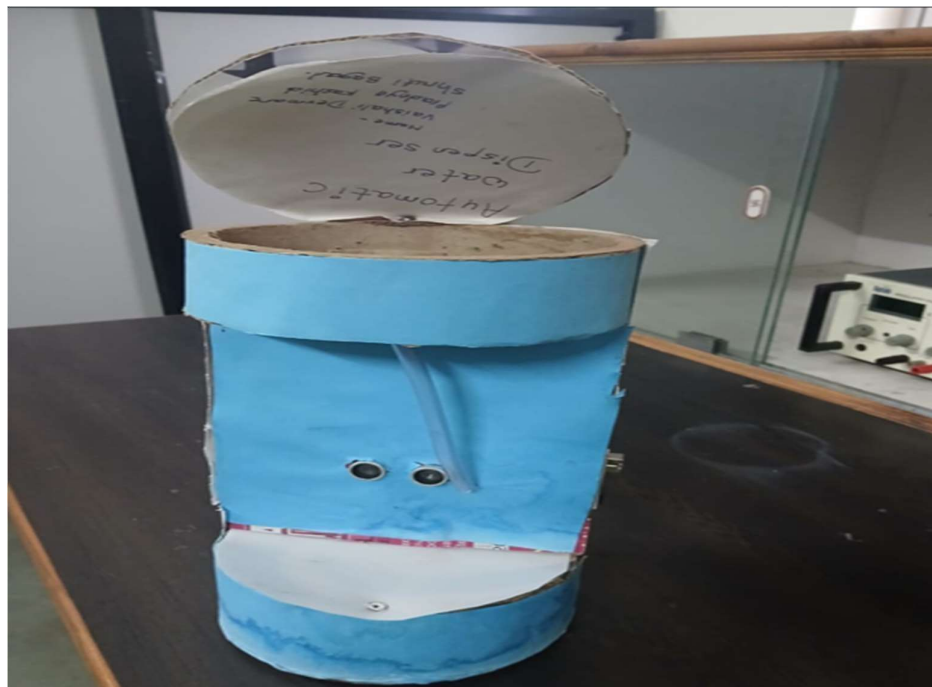


Fig.1: Circuit diagram of Automatic Water Dispenser



## Department of Electronics & Telecommunication Engineering

### ➤ APPLICATIONS:

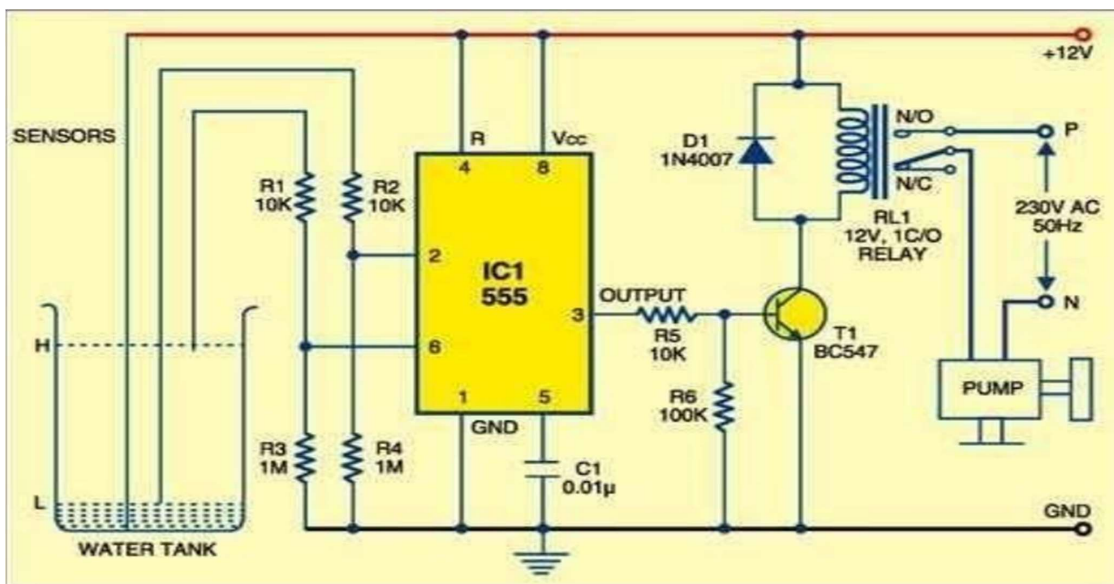
1. Water dispenser facilitates easily supply of drinking water
2. It is very useful equipment and can supply cold, moderate and hot water.
3. Water dispensers play a vital role in workplaces, restaurants, hospitals and public places for storing clean drinking water.

### ➤ Automatic water level controller

An **Automatic Water Level Controller**, which is a crucial application in the Electronics System Design subject. This project aims to revolutionize water management by automating the process of maintaining optimal water levels in tanks or reservoirs. By leveraging modern electronic components and control systems, this project seeks to reduce manual intervention, prevent water wastage, and minimize the risk of overflow or pump damage. Through its innovative approach, the project addresses a critical need for efficient water resource management in various sectors.

- **Problem Statement:** Developing an automatic water level controller to eliminate manual monitoring, prevent overflow, and optimize water usage in tanks.

- **CIRCUIT DIAGRAM:**



## Department of Electronics & Telecommunication Engineering

Fig.1. Automatic Water Level Controller

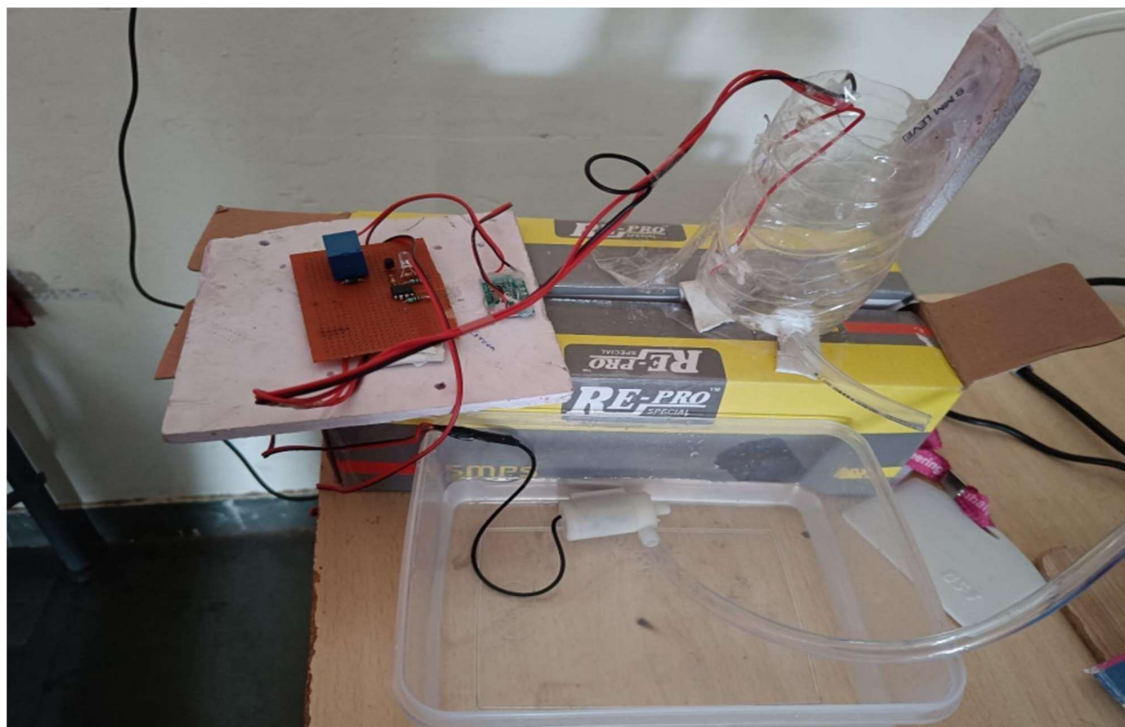


Fig.2: Prototype Model of Automatic water level controller

- Application:

1. **Residential Water Tanks:** Ensuring constant water supply in overhead tanks and preventing overflow by automatically controlling the water level.
2. **Commercial Buildings:** Managing water levels in storage tanks for fire protection systems, cooling towers, and HVAC (Heating, Ventilation, and Air Conditioning) systems.
3. **Agriculture:** Regulating water levels in irrigation systems, ensuring optimal water supply to crops while minimizing wastage.



Ms. A. H. Shinde  
Course Coordinator





Dr. A. O. Mulani  
H. O. D. E&TC