Efficient Water Network System

Senior Project Design
Team: 085
Term: 232
Coach: Dr. Yasser Almoghathawi

AquaBill

Team Profile

Introduction

Problem Statement:

In multi-unit buildings equipped with a single water meter, the total water consumption is billed equally among all residents, regardless of individual usage. This results in unfair billing where residents with lower water usage subsidize those with higher consumption

Project Impact:

AquaBill ensures fair billing by measuring individual water use in multi-unit buildings, promotes conservation through real-time monitoring, detects leaks, and enhances financial efficiency by addressing non-payment issues, fostering a sustainable and equitable living environment

Potential Beneficiary:

شركة المياه الوطنية
National Water Company

الماجدية ريزدنس
ALMAJDIAH RESIDENCE
مجتمع متكامل

صفا
SAFA

Prototype

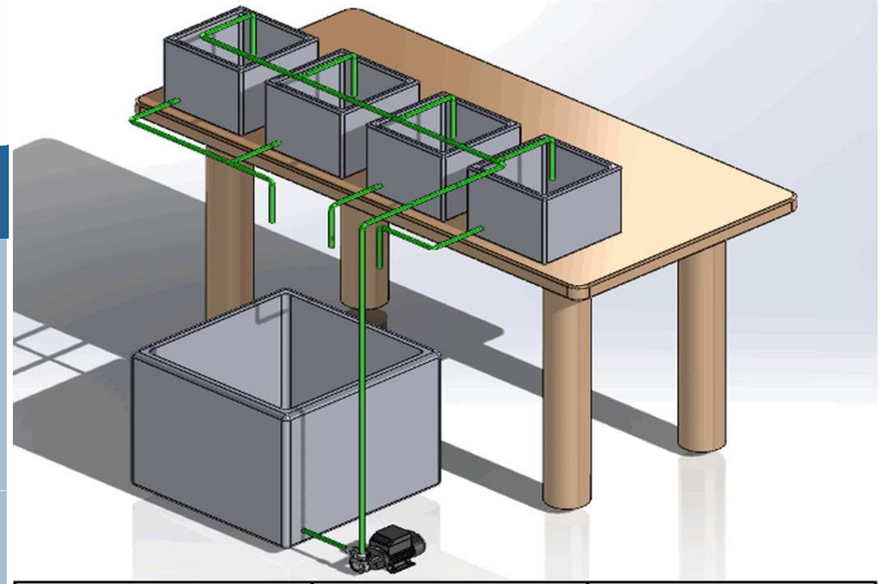
Constrains:

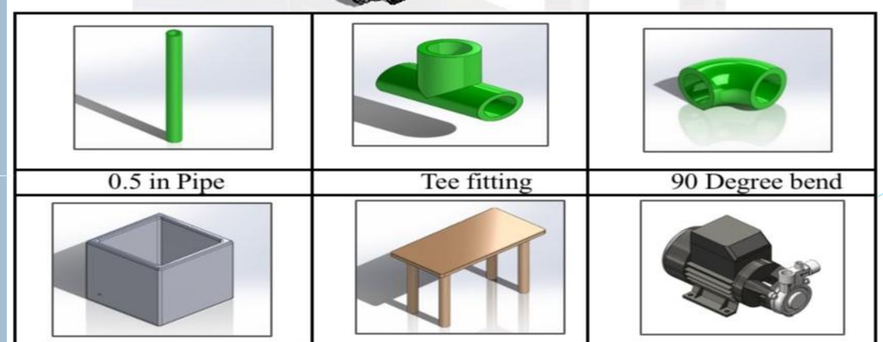
- Supports wireless connectivity
- Budget-friendly
- User-friendly
- Environmentally friendly: energy and water-efficient
- Weather-resistant and durable

Specifications:

- Pipe diameter: 0.5 inch
- Reduce water usage: 15%-20%
- Sensor size: smaller than 4
- App updates: within 2 minutes
- Sensor flow rate: 1-30 L/min

Drawing





Dashboard

Validation

Our project features a 0.5-inch pipe diameter tailored to pump and sensor specifications, aiming to cut water use by 15-20%. The compact sensor, under 4 inches, handles flow rates of 1-30 L/min and updates via our app every 10 seconds, ensuring real-time data accuracy

Tier architecture