SMART WATER MANAGEMENT SYSTEM FOR VILLAGES

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Problem Statement

In many villages, drinking water management is entirely manual, leading to inefficiencies, wastage, and health risks. The tank filling process lacks automation, causing overflows and delays. Water quality is not monitored, increasing contamination risks. Water distribution is irregular, and villagers are not notified in advance. Dependence on a single admin further disrupts the process, making water access unreliable and unsustainable.

Objectives

**Automation**: Reduces manual effort and improves efficiency in village water distribution.

Real-Time Monitoring: Ensures safe and consistent water supply by tracking levels and quality.

Water Conservation: Prevents wastage with automated motor control and smart distribution.
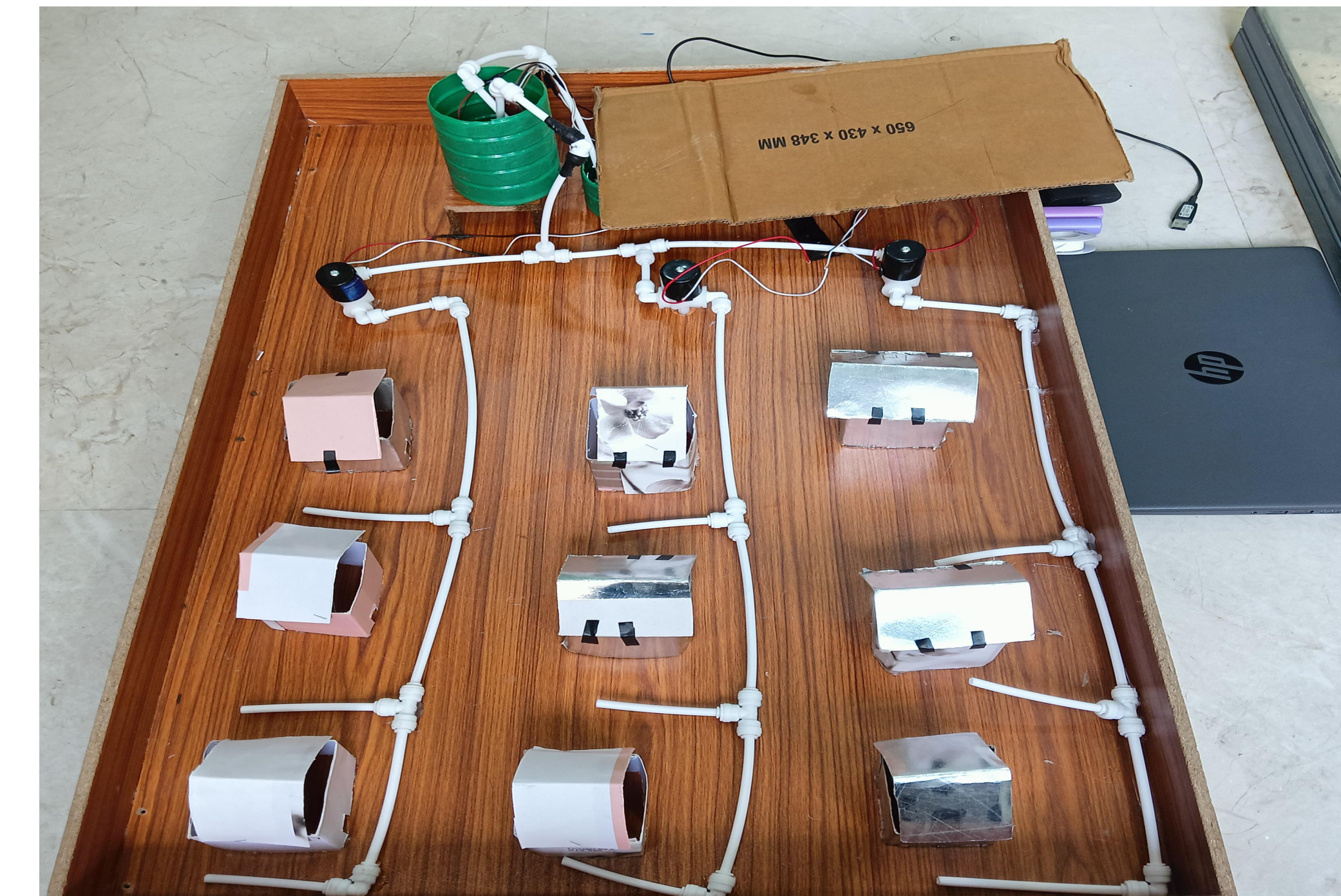
Easy Control: A dashboard helps the admin monitor and manage the system remotely.

Methodology

Block diagram of smart water management system
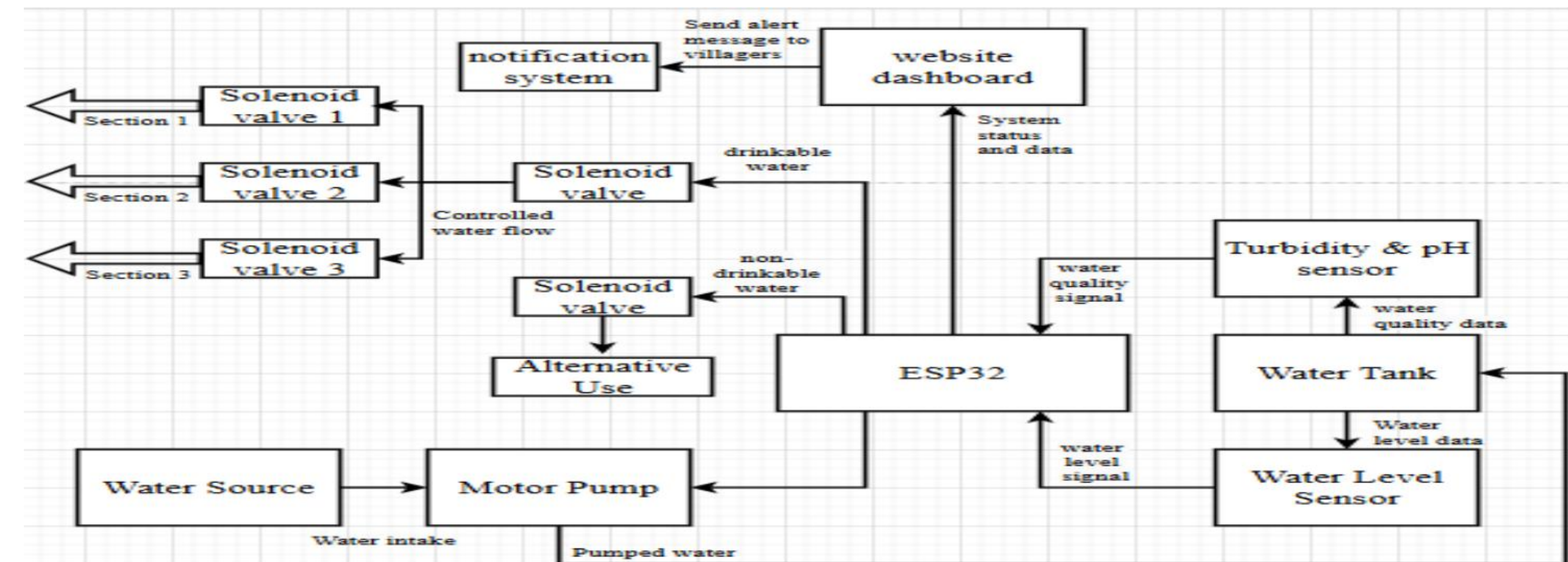
Hardware

ESP32 **Turbidity sensor** **Water pump**

Solenoid valves **Relay module** **Water level**

Technology used

- Application: MIT app Inventor
- Microcontroller Programming: C++
- Database: Firebase

Results

Conclusion

Smart Water Management System automates water distribution, reduces wastage, and ensures clean water access in villages. It uses affordable components, works in rural & urban areas, can scale for industries. Its smart automation makes it efficient, patent-worthy, and ready for wider use.

References

- Automatic Control System for Water Distribution – W. M. Azam, S. M. S. Hasan, and M. T. Islam, ICMERE.
- IoT-Based Smart Water Quality Monitoring System – V. Lakshmikantha et al., Global Transitions Proceedings.