Water Monitoring System for Farms

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Challenges faced in farms

- Animal well-being is crucial for ethical treatment and optimal farm productivity.
- Traditional methods of monitoring water levels and providing salt licks are often time-consuming and labor-intensive.

Introducing the Water Monitoring System for Farms

- The system utilizes Internet of Things (IoT) technology to provide real-time monitoring and management of water levels in animal troughs.
- Integrates water level sensors, infrared (IR) sensors, motors, and a mobile application interface.
- Offers real-time data, automated processes, and remote control capabilities.

Benefits of the Water Monitoring System for Farms

- Enhances Animal Welfare
- Optimizes Resource Utilization
- Improves Farm Productivity
- Increases Farm Sustainability

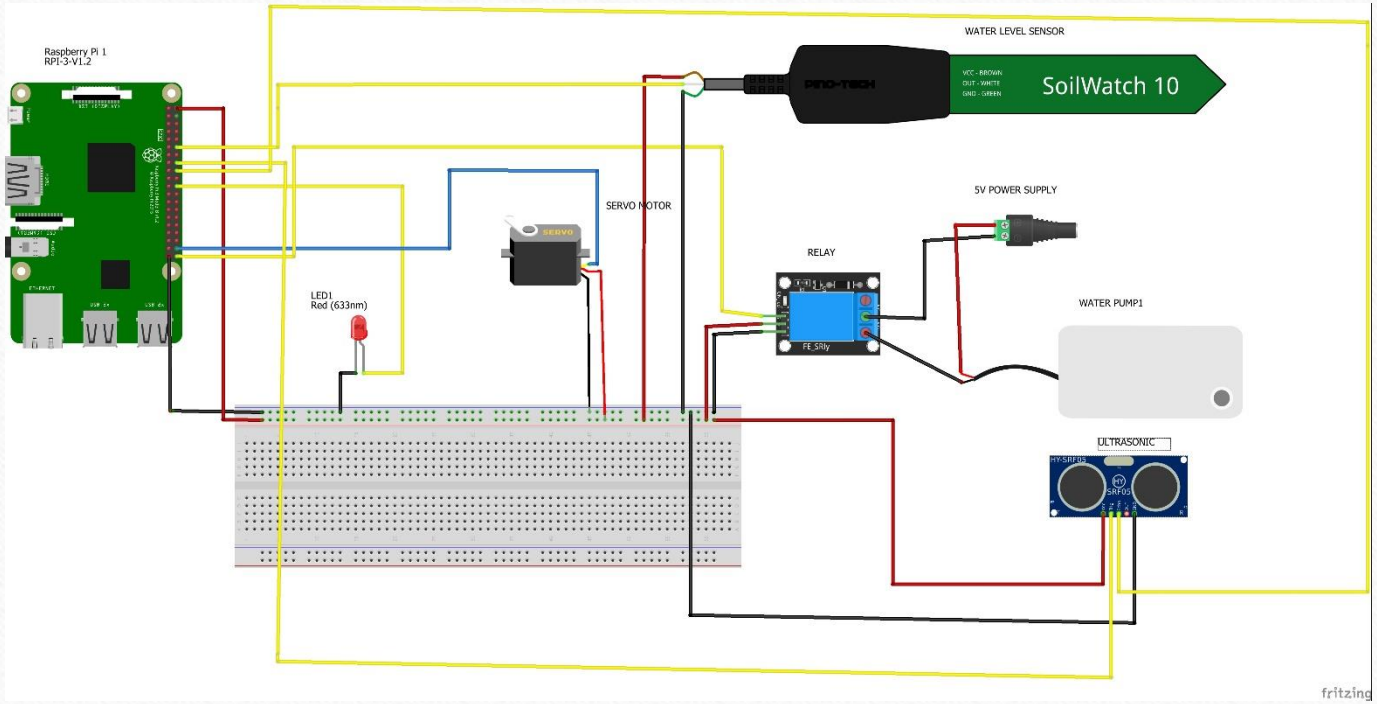
Key Objectives

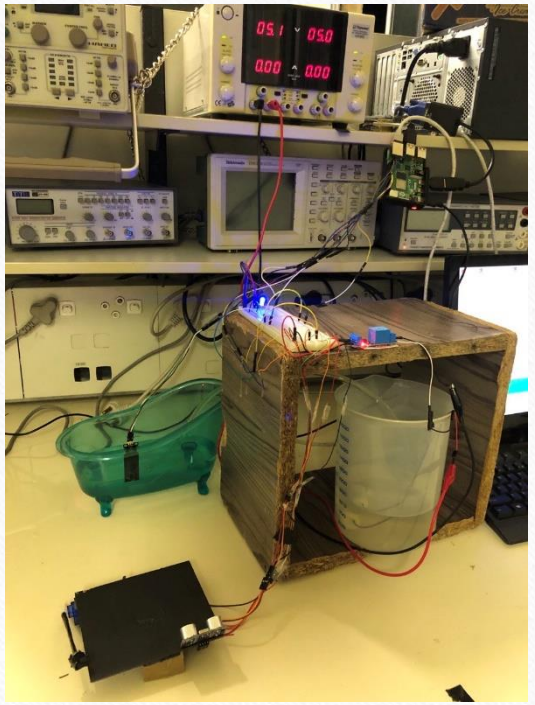
- Water Level Monitoring
- Automated Refilling
- Animal Presence Detection
- User Interface Development

Equipment used

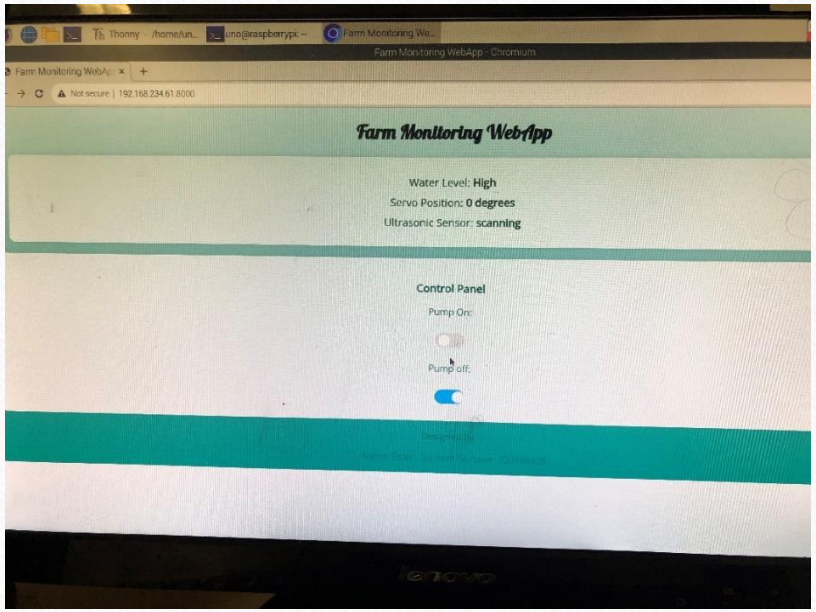
- Raspberry Pi
- Jumper wires and LED
- Ultrasonic sensor
- Water Level sensor
- Servo Motor
- Relay switch
- Water Pump and pipe
- Water trough & tank
- 5V DC power supply

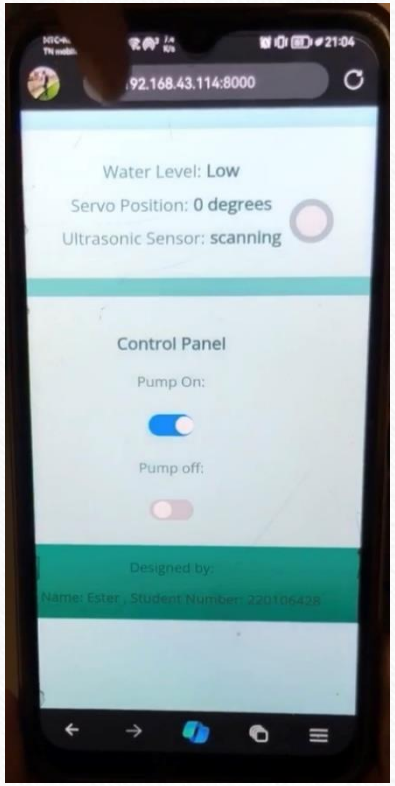
Design

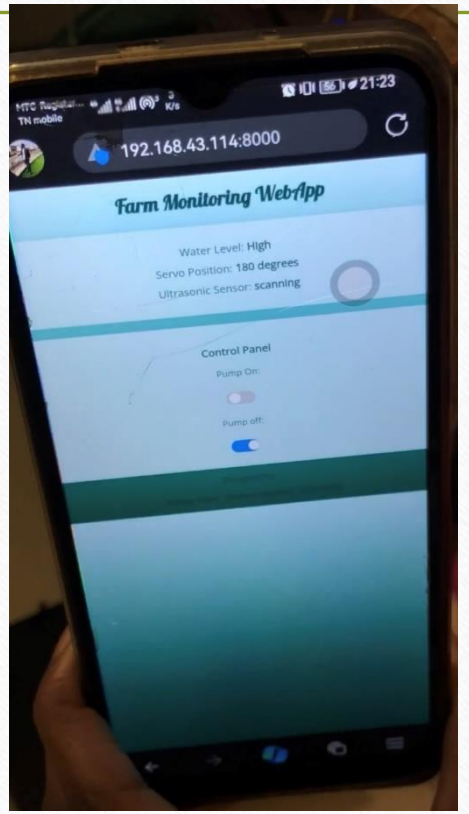

Raspberry PI 1
RPI-3-V1.2
WATER LEVEL SENSOR
PRO-TECH
SoilWatch 10
SERVO MOTOR
5V POWER SUPPLY
RELAY
LED1
Red (633nm)
WATER PUMP1
ULTRASONIC
fritzing



Results







The figures show the results as observed via the IoT

SWOT Analysis

Strengths

- Real-time water level monitoring & automated refill
- Improved farm management
- Potential for animal presence detection and salt lick dispensing
- Modular design

Weakness

- Internet dependent on remote access
- IP address based
- SG 90 servo motor is prone to jitter

Opportunities

- Market potential
- Partnerships with agricultural organizations

Conclusion

- The Water Monitoring System for Farms is a comprehensive solution that addresses critical needs in modern agriculture.
- By leveraging IoT technology, the system offers real-time data, automated processes, and remote control capabilities.
- This innovative system has the potential to significantly improve animal welfare, optimize resource utilization, enhance farm productivity, and promote sustainable farming practices.

Recommendations

- Hosting the system on a Global platform, this will allow access and monitoring from anywhere around the world
- Using a servo motor that is not prone to jitter