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# IOT BASED WATER LEVEL INDICATOR

# ABSTRACT

- ▶ This project automates water pump for filling tank, watering garden and farm for our department.
- ▶ Through our project, we are eliminating manual control for the whole system. We also eliminate the wastage of water due to negligence from the user side.
- ▶ Manual override control over the system.

# EXISTING SYSTEM

- ▶ A person should manually monitor the water level.
- ▶ Turn pump and corresponding valves manually.
- ▶ Possible wastage of water due to user negligence.
- ▶ No usage log with aggregate usage report.
- ▶ Remote access to the system.

# PROPOSED SYSTEM

- ▶ An IOT based solution for the problem.
- ▶ Automates water pumping to tank based on water level.
- ▶ Automates garden sprinkler system based on moisture level.
- ▶ Automates farm sprinkler system based on time.
- ▶ A method that allows only one system to work at a time.

# PRODUCT FUNCTIONS

- ▶ Automated pump control.
- ▶ Android app for user to get information and control the system.
- ▶ Fill tank based on water level.
- ▶ Farm sprinkler system based on time.
- ▶ Garden sprinkler system based on moisture level.

### CONTINUE..

- ▶ Manual control over the system.
- ▶ Provides log and summary of the system.
- ▶ Web based UI for better user experience.
- ▶ LCD display on device to view pump status and water percentage.

# HARDWARE REQUIREMENTS

- ▶ Tank Module
  - ▶ Atmega328p - 1
  - ▶ 10k resistor - 4
  - ▶ Ultrasonic sensor - 1
  - ▶ Wires

### CONTINUE..

- ▶ Valve control module
  - ▶ Atmega328p - 1
  - ▶ Moisture sensor - 1
  - ▶ Solenoid valve - 3
  - ▶ Wires



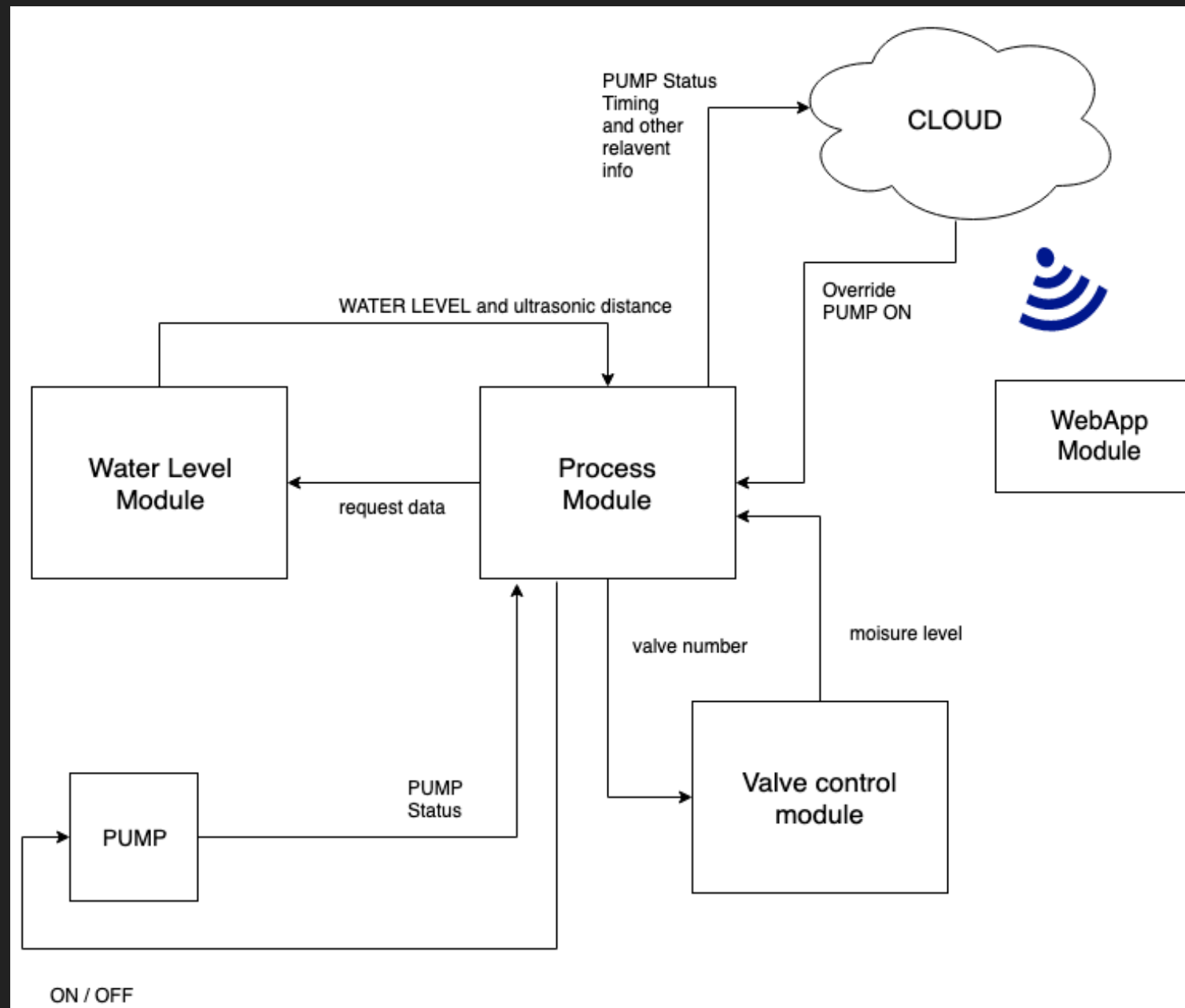
# CONTINUE..

- ▶ Main module
  - ▶ Raspberry Pi Zero W - 1
  - ▶ Logic level shifter - 1
  - ▶ 5V relay - 1
  - ▶ LEDs - 2
  - ▶ LCD display

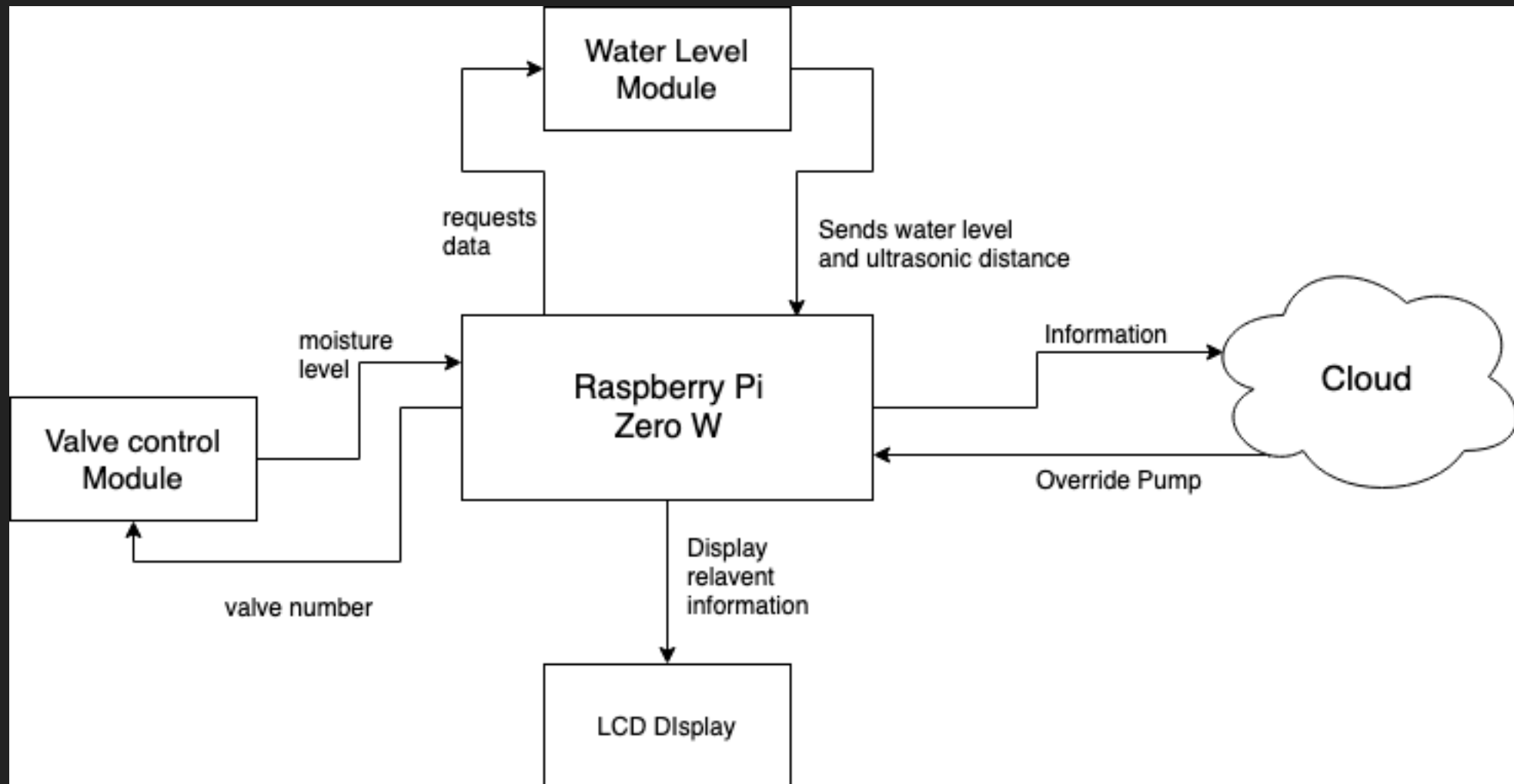
# SOFTWARE REQUIREMENTS

- ▶ Arduino IDE - For flashing atmega328p
- ▶ Embedded C - For write code for atmega328p
- ▶ Visual Studio code - For developing python, NodeJS and ReactJS code for raspberry Pi.
- ▶ Android Studio - For developing android code for the system.
- ▶ Firebase - For database connectivity.

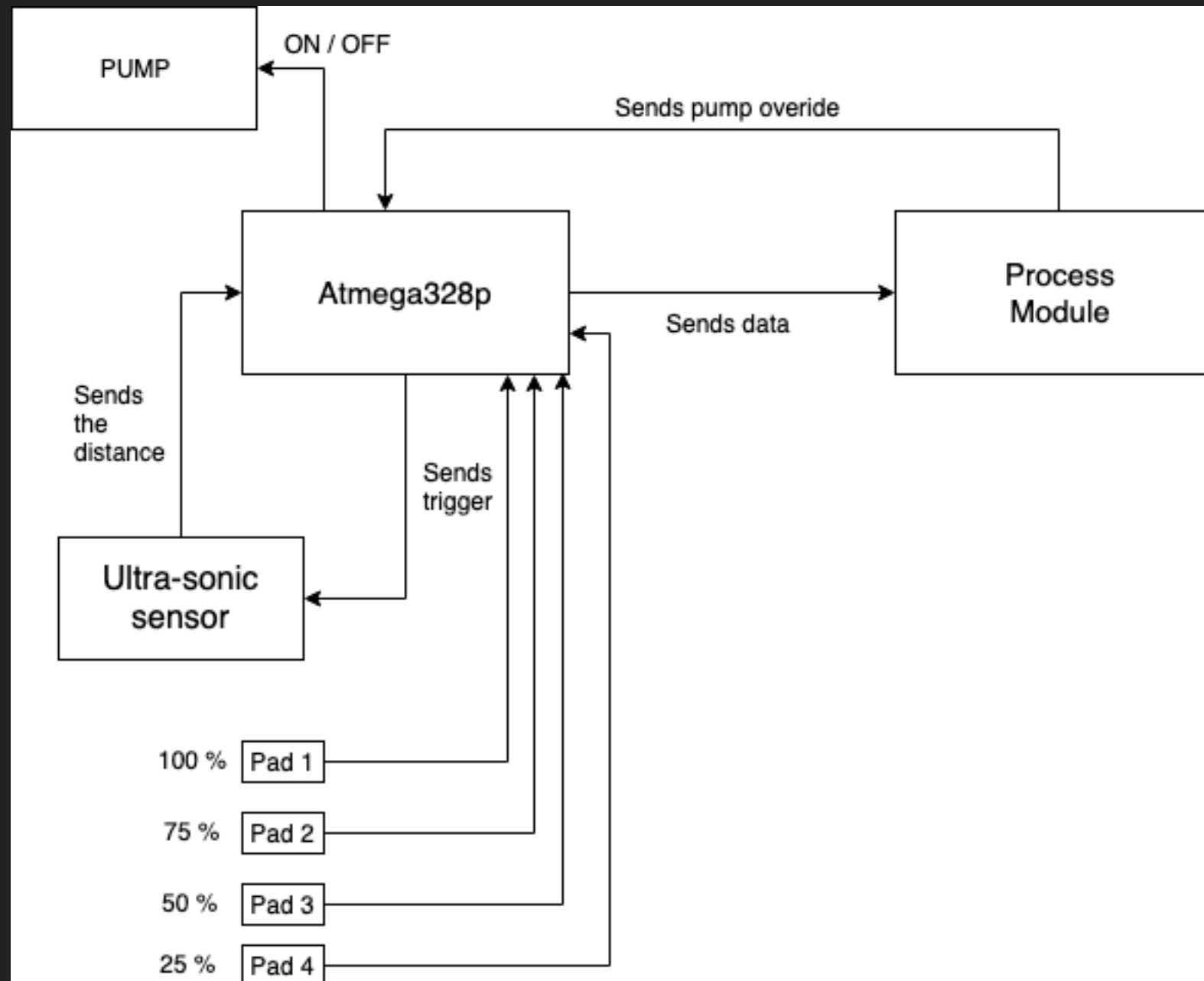
# HARDWARE DESIGN – MAIN DESIGN



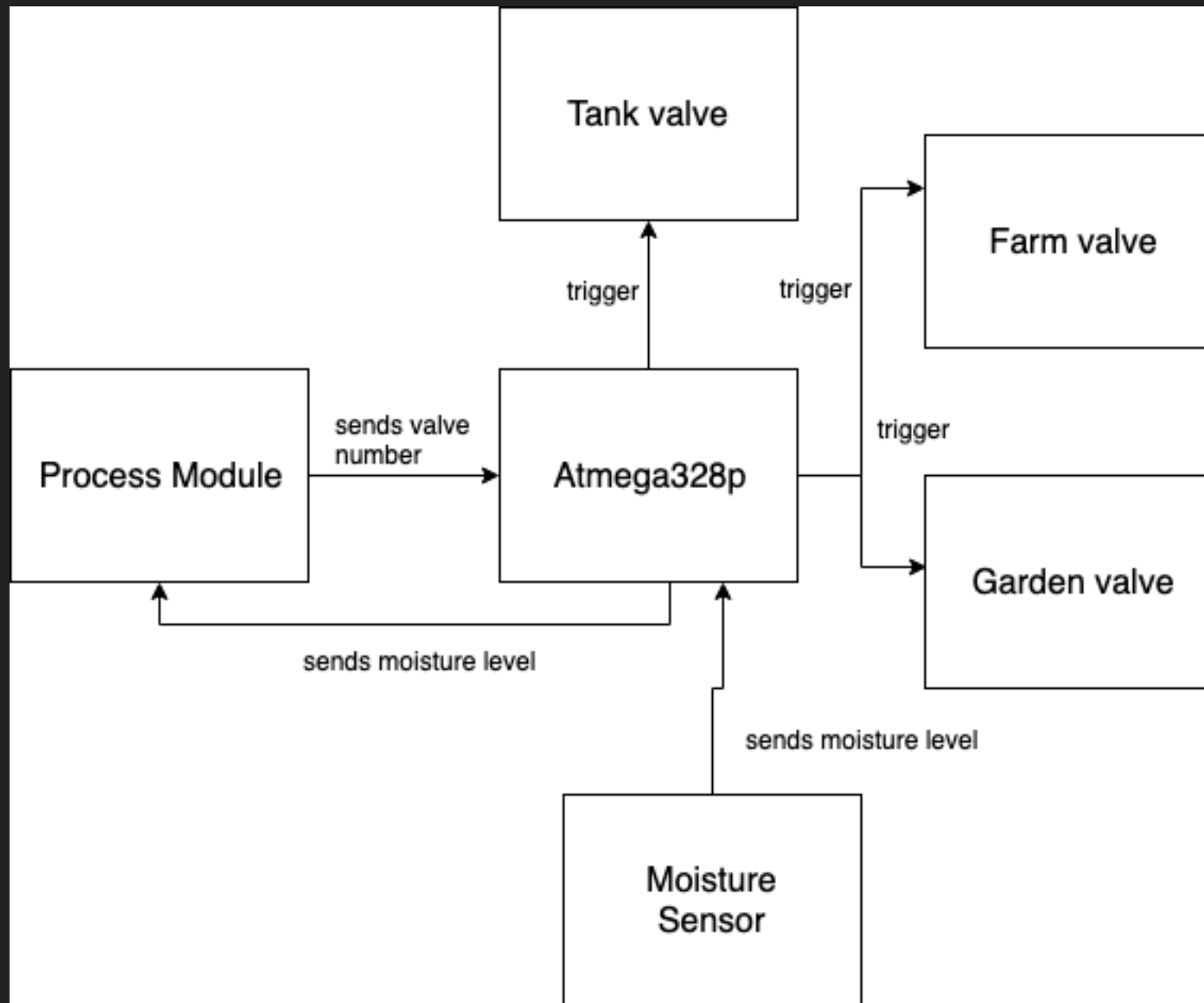
# HARDWARE DESIGN – PROCESS MODULE



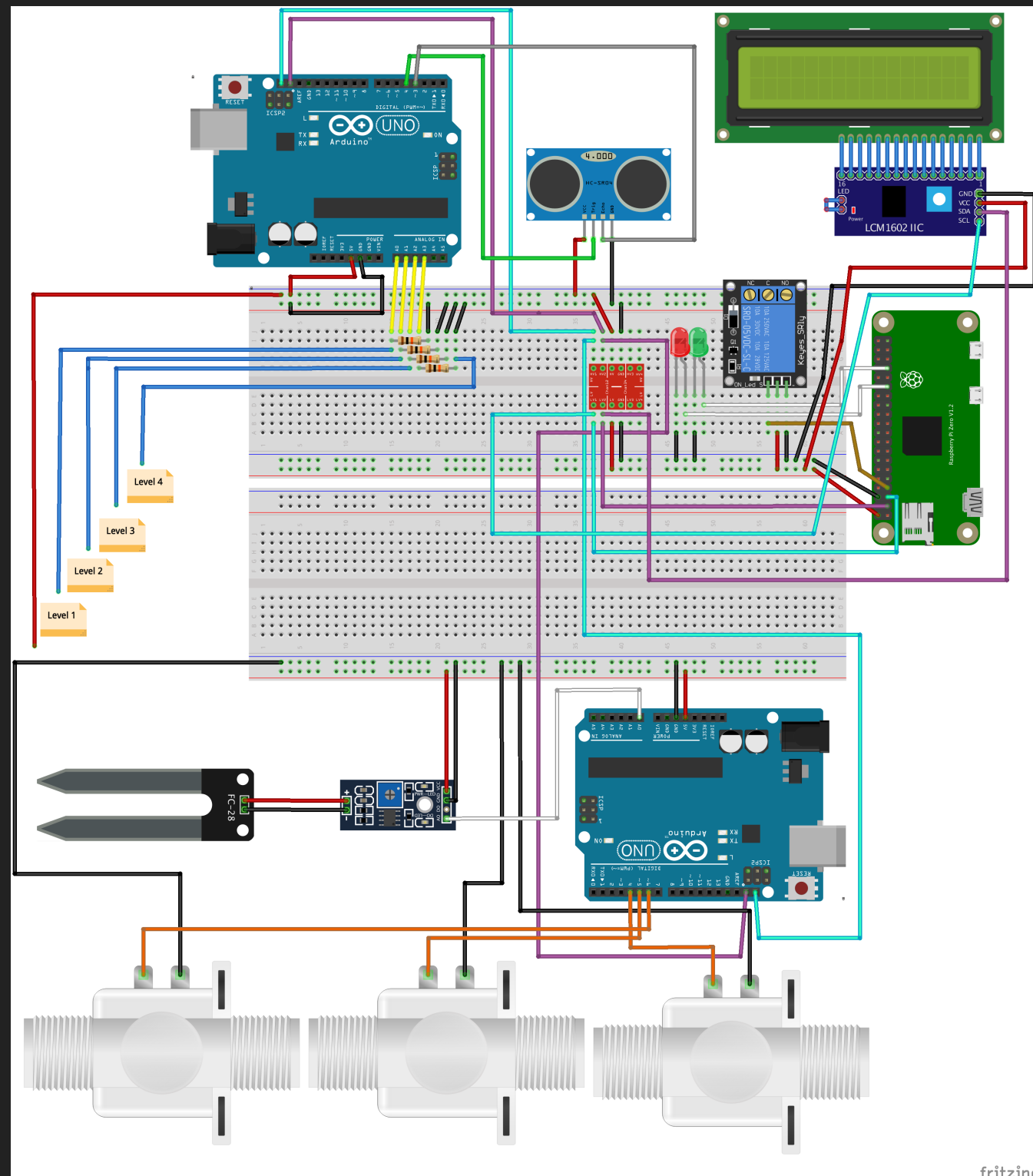
# HARDWARE DESIGN – TANK MODULE



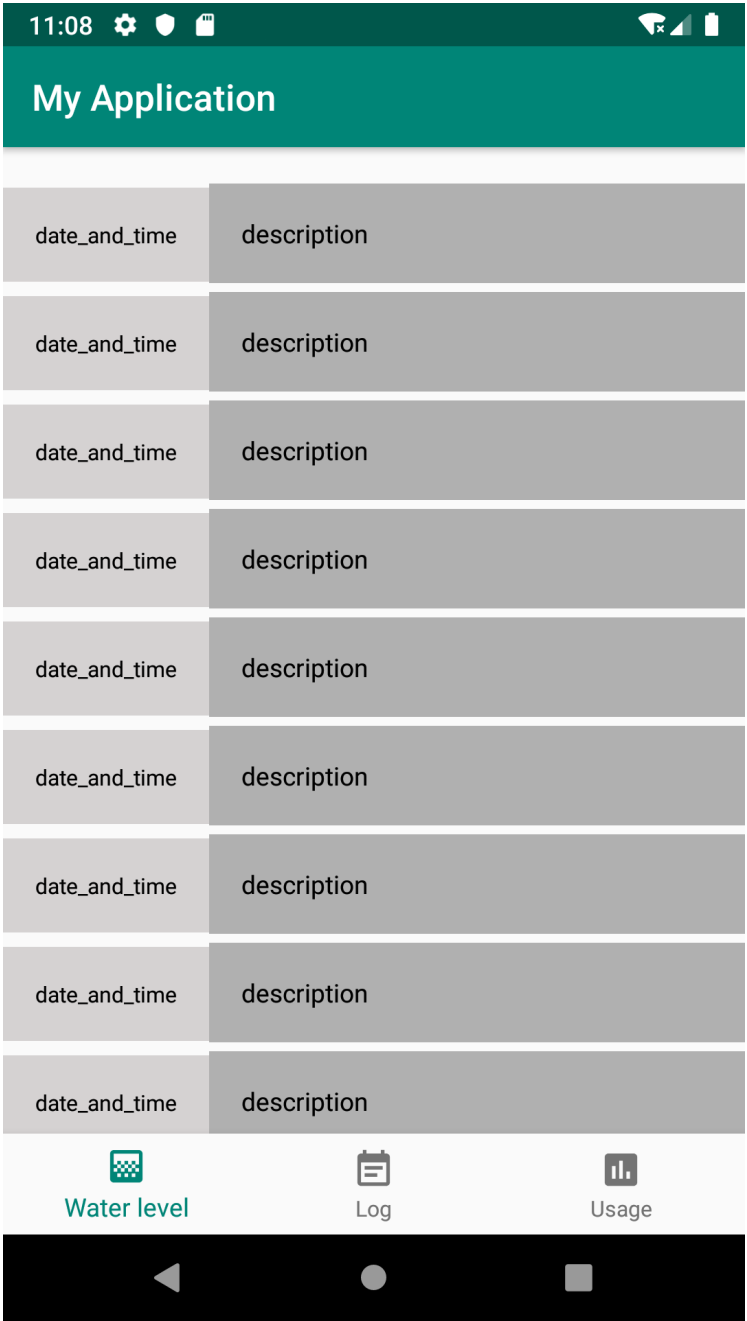
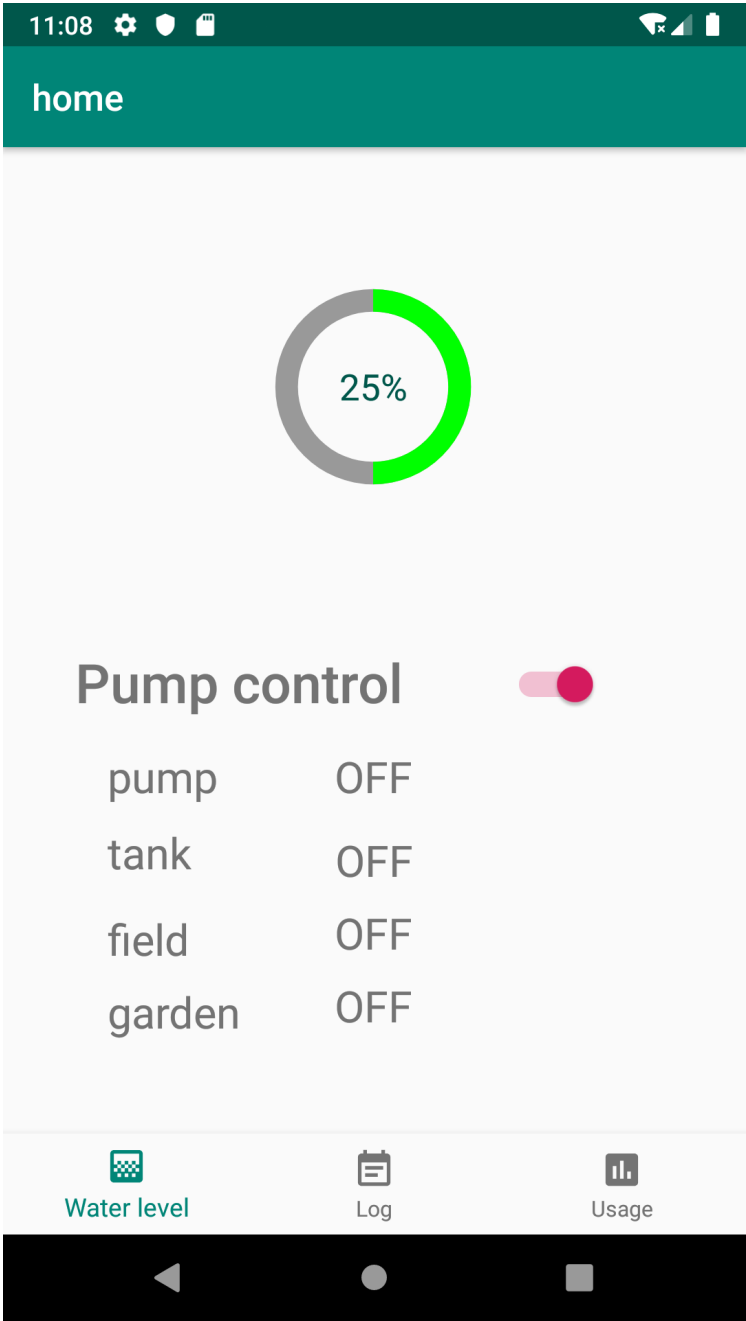
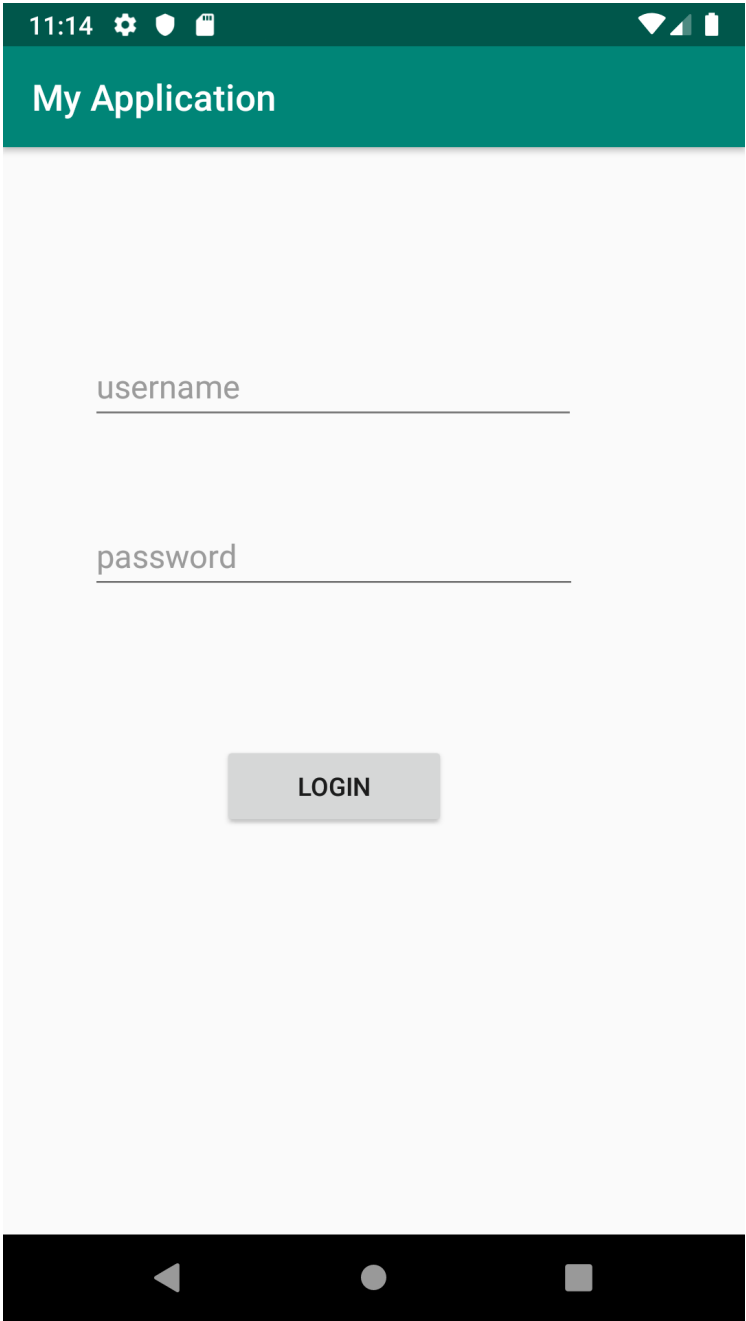
# HARDWARE DESIGN – VALVE CONTROL MODULE



# HARDWARE DESIGN – FRITZING DESIGN

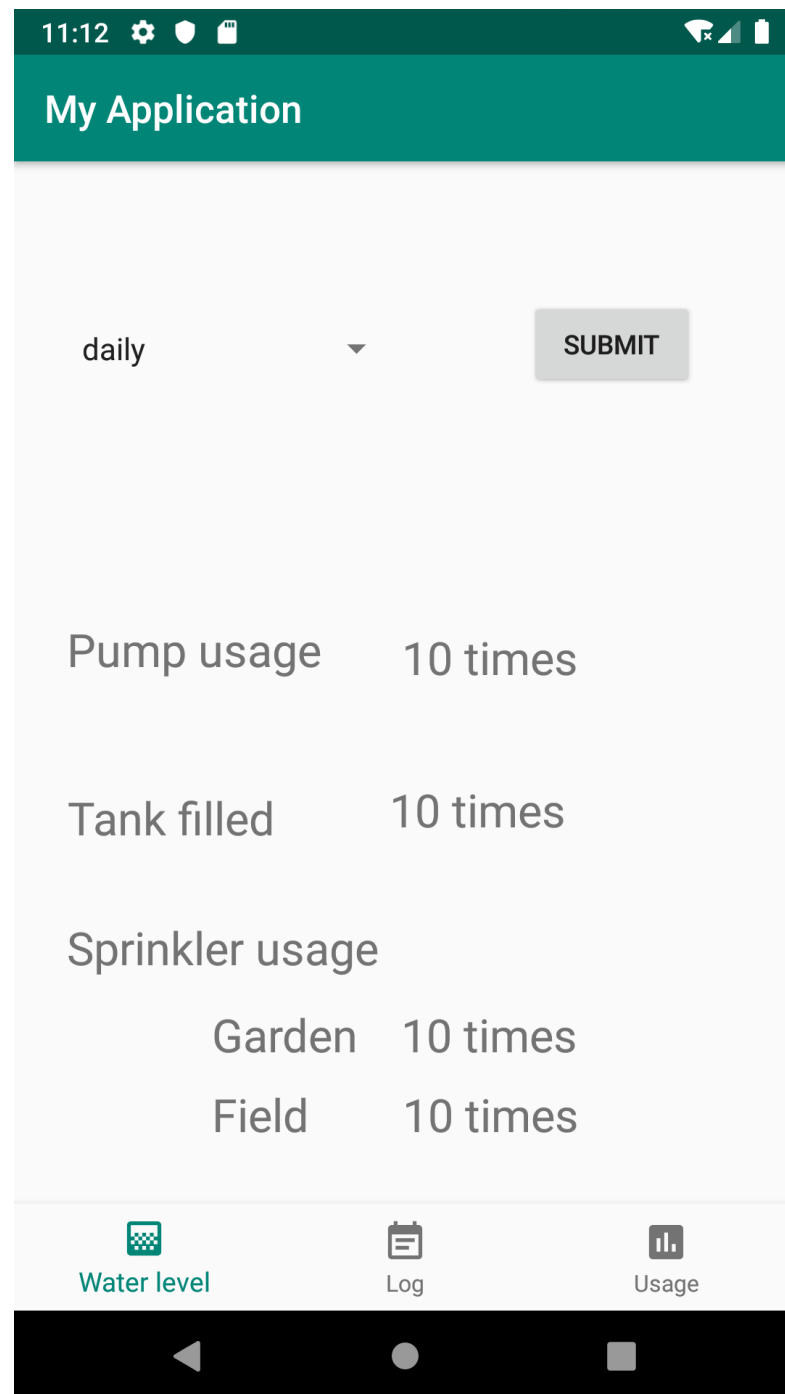


SOFTWARE DESIGN





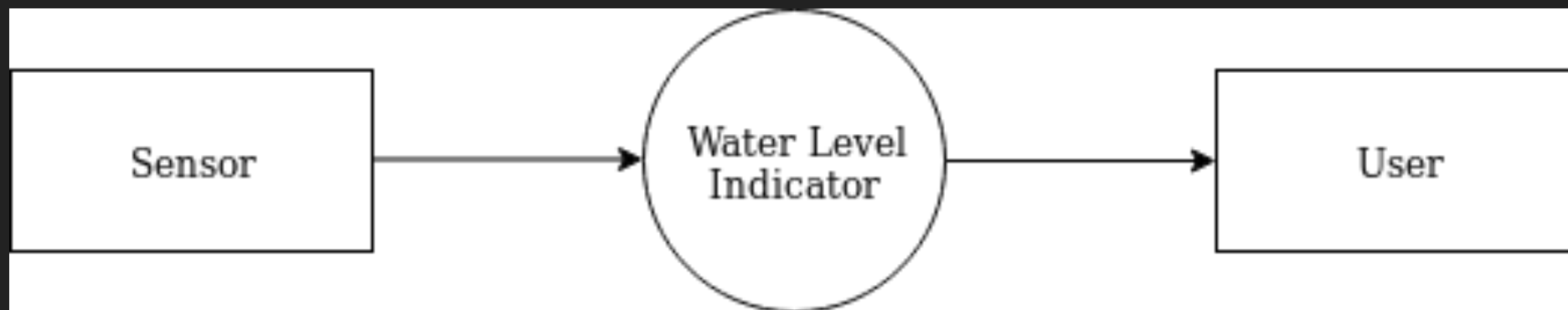
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## DATA FLOW DIAGRAM

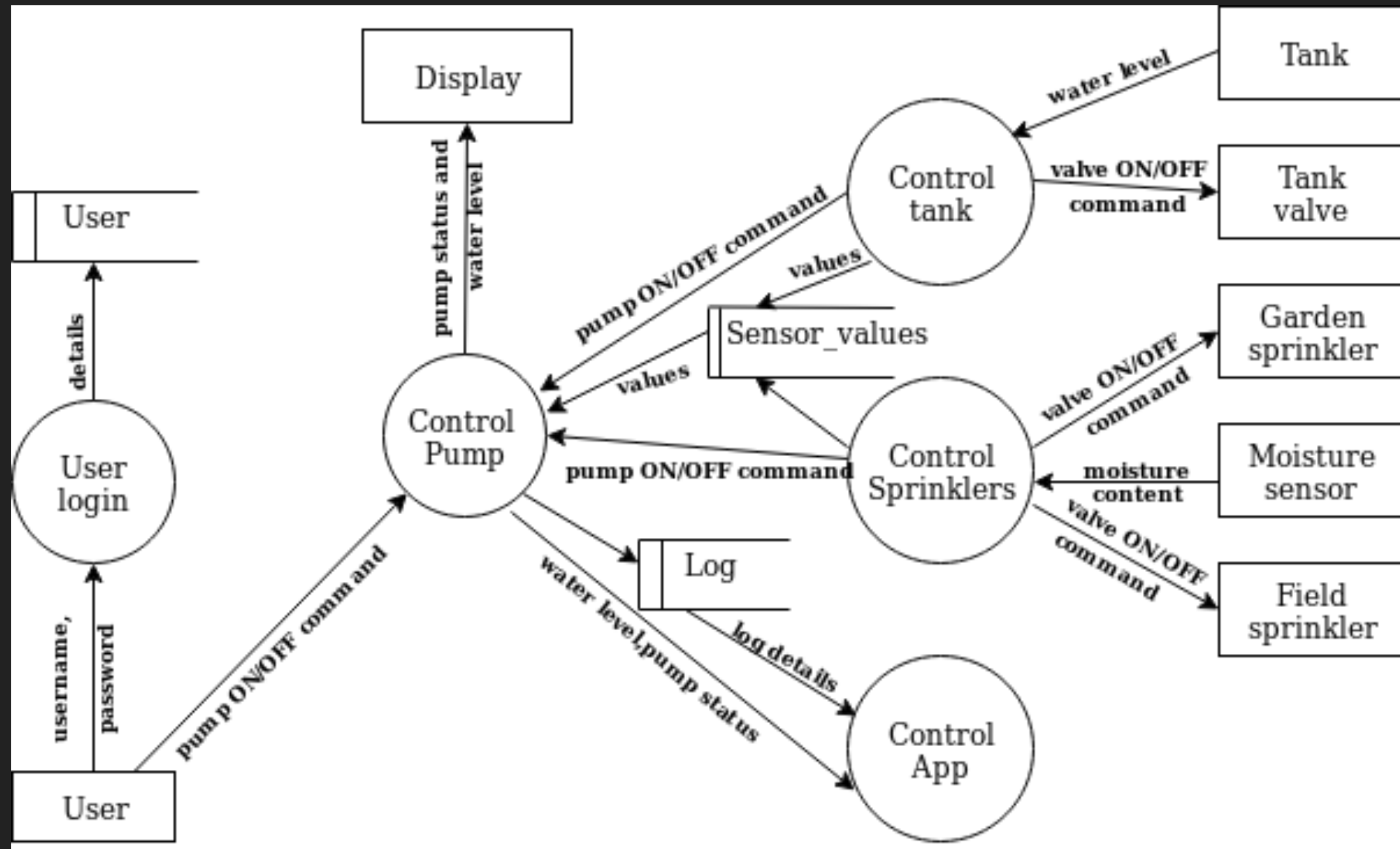
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### LEVEL 0



# DATA FLOW DIAGRAM

## LEVEL 1



# CONCLUSION

- ▶ Cost effective method.
- ▶ Eliminate manual supervision.
- ▶ User friendly and informative dashboard.
- ▶ Accessible through android app and web app.

**THANK YOU**