BY SASHWAT K & VIJITHA V NAIR

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

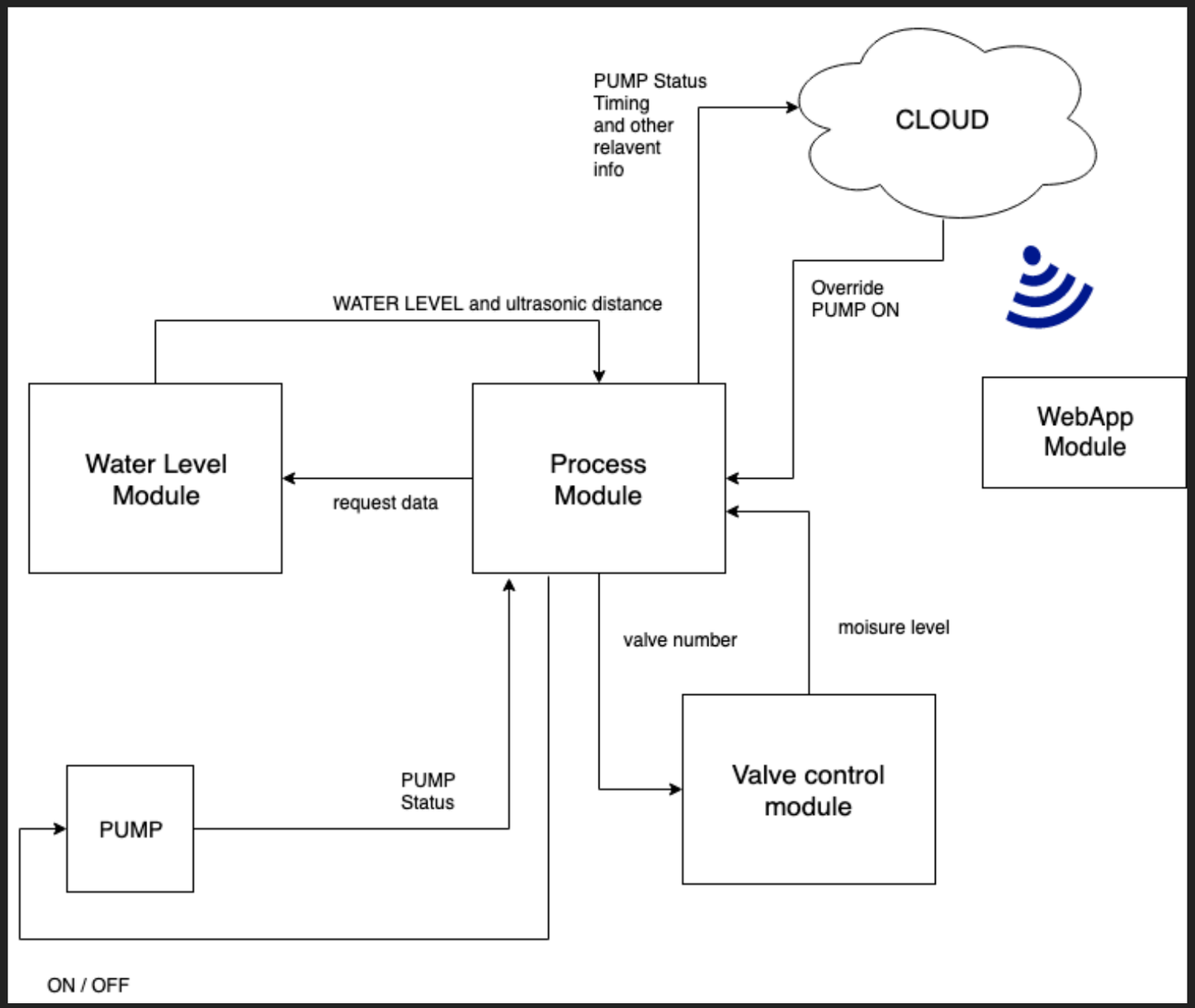
CONTINUE..

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

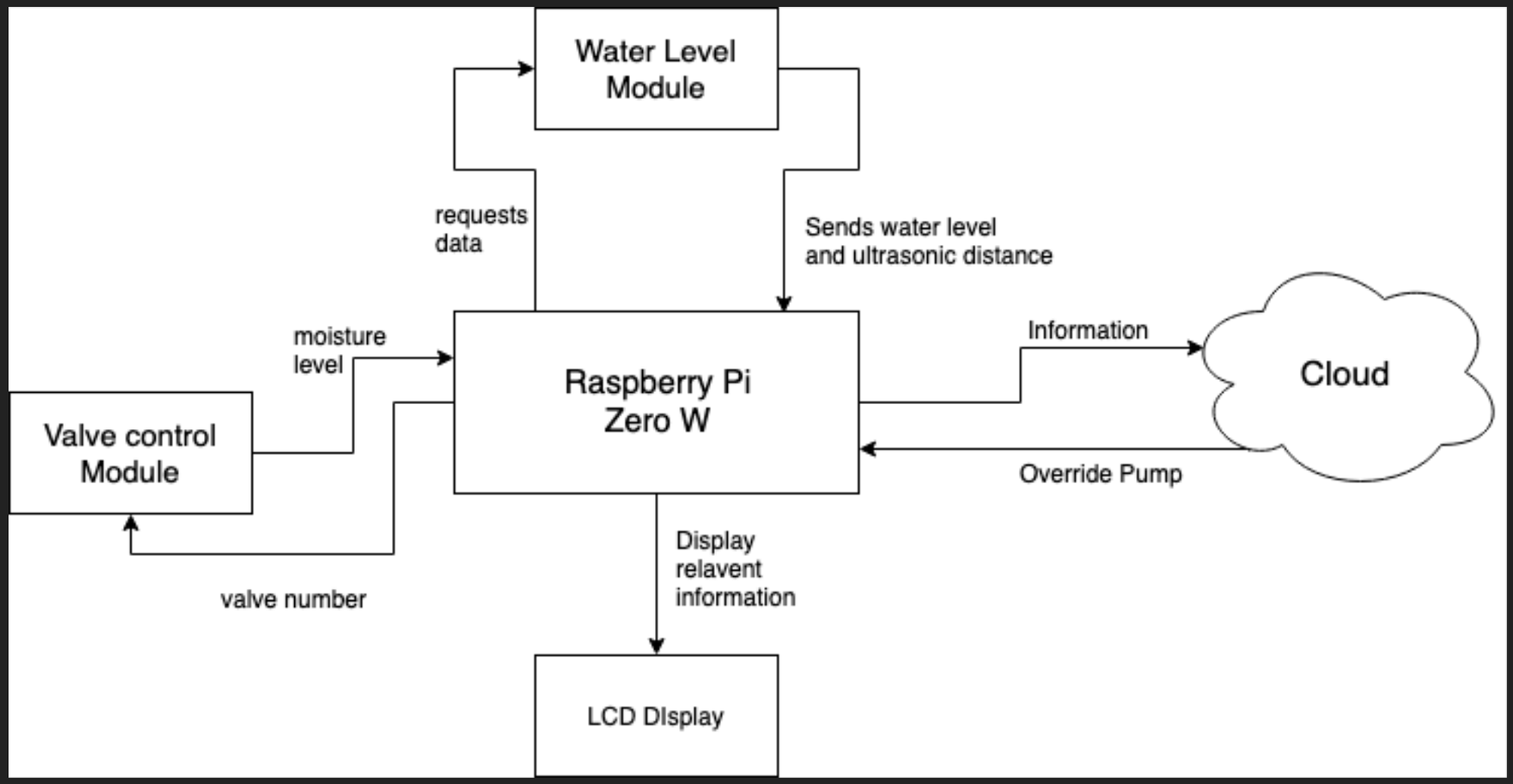
SOFTWARE REQUIREMENTS

- 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.

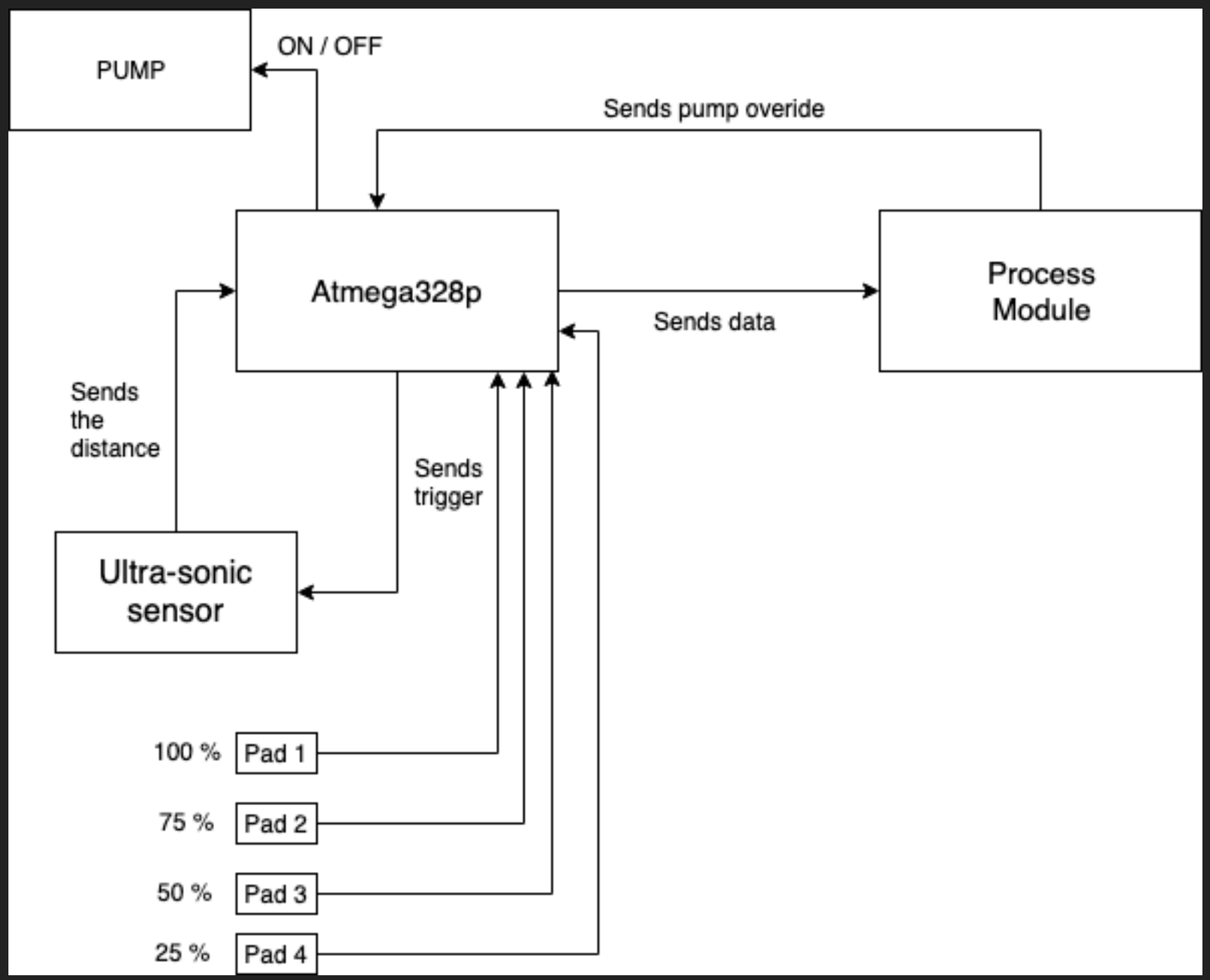
HARDWARE DESIGN – MAIN DESIGN



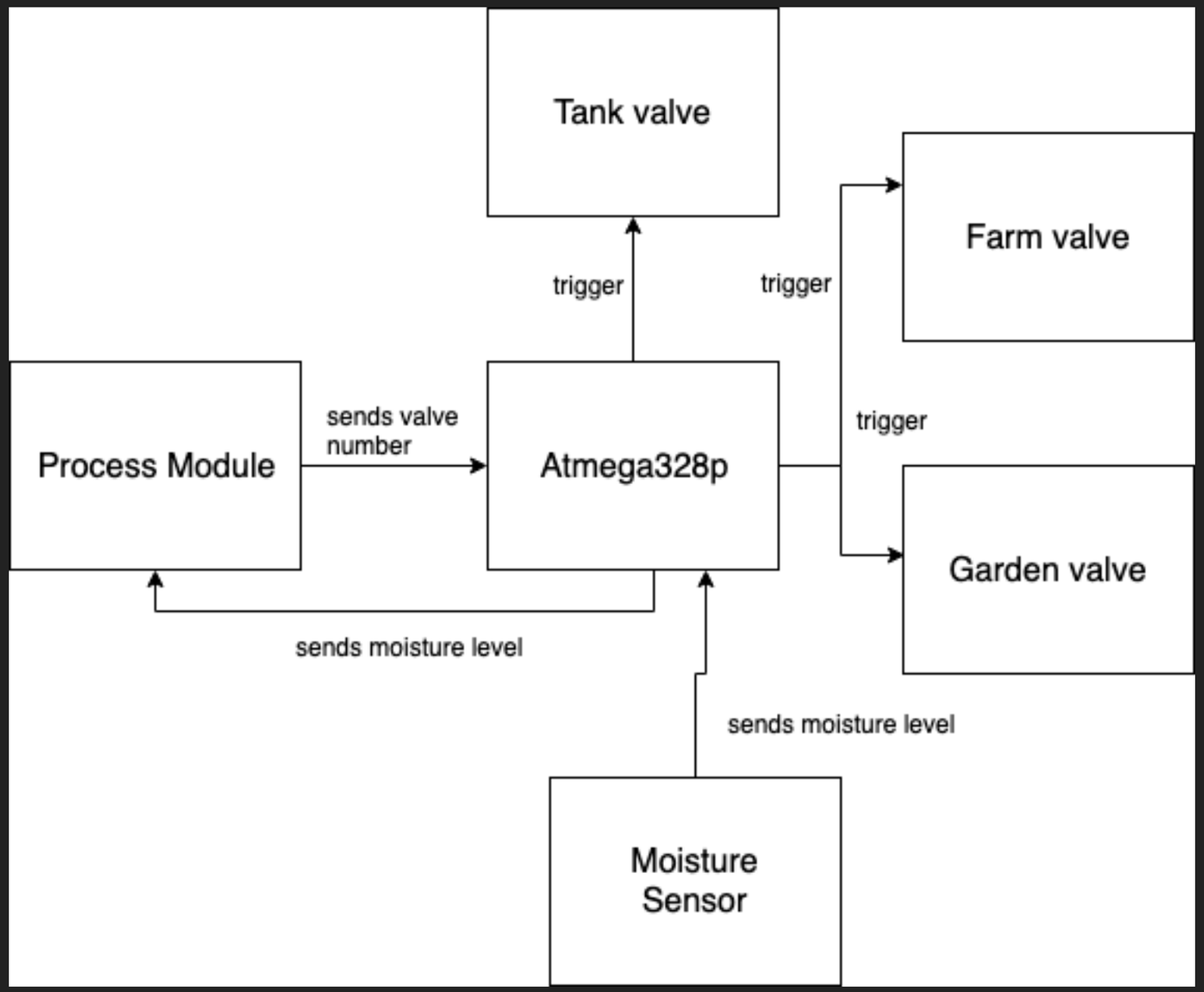
HARDWARE DESIGN – PROCESS MODULE



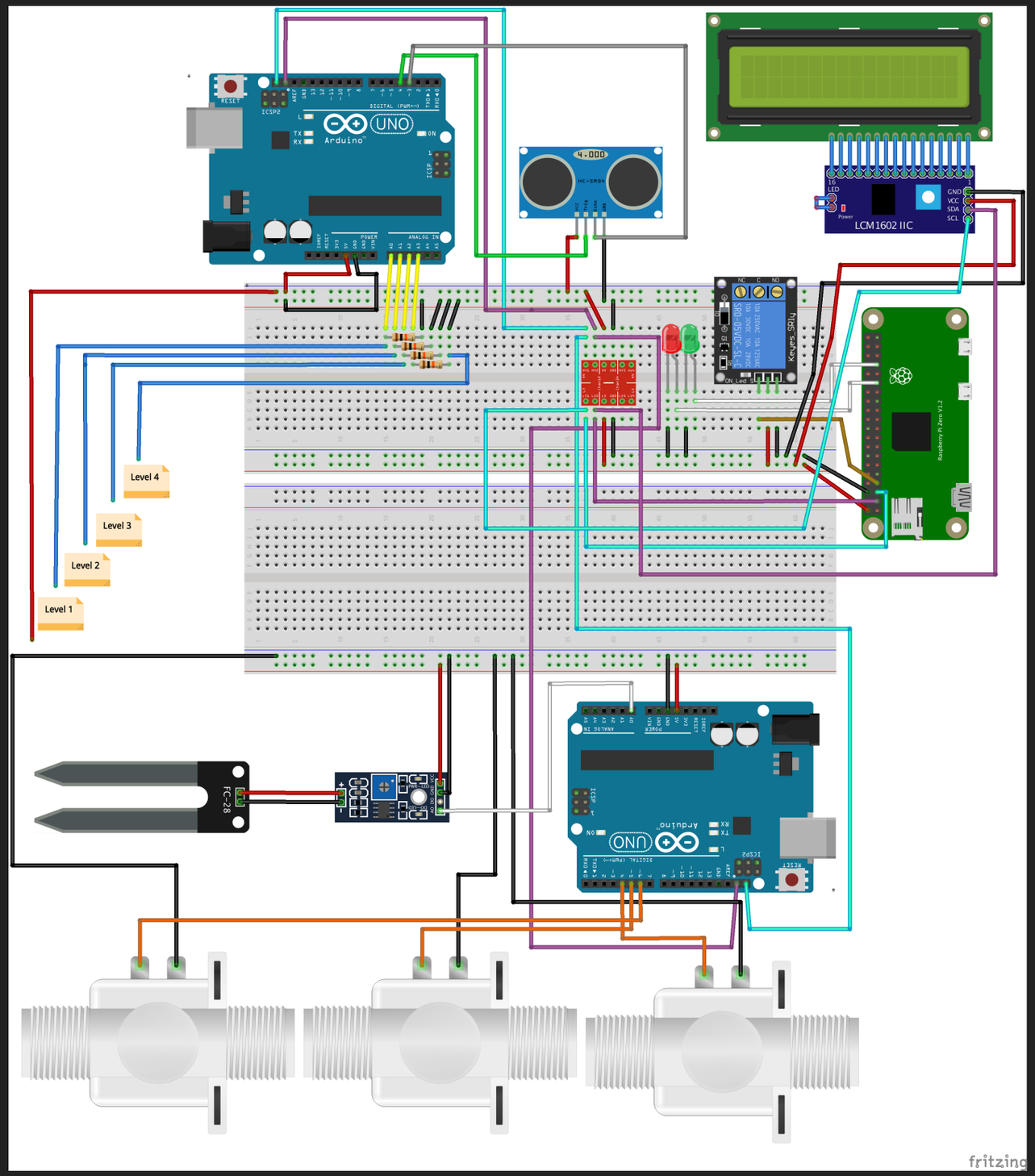
HARDWARE DESIGN – TANK MODULE



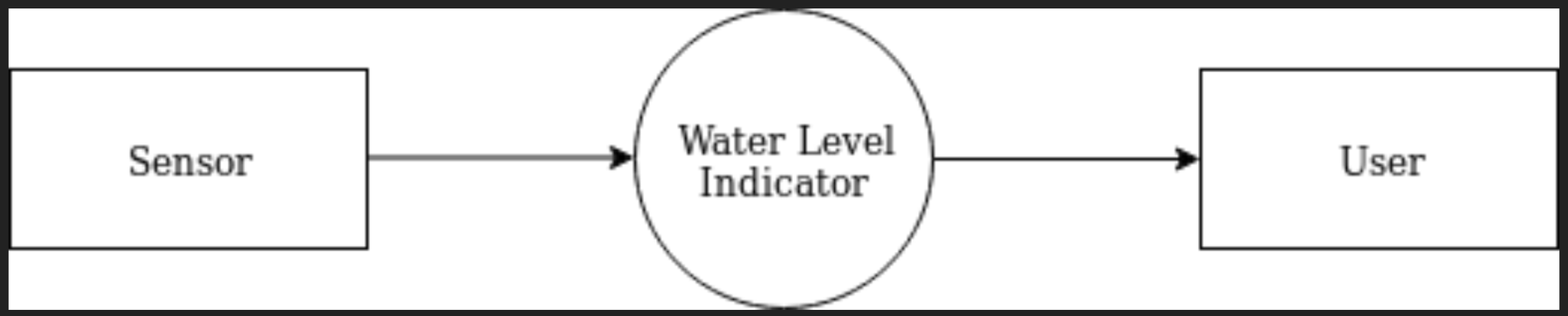
HARDWARE DESIGN – VALVE CONTROL MODULE



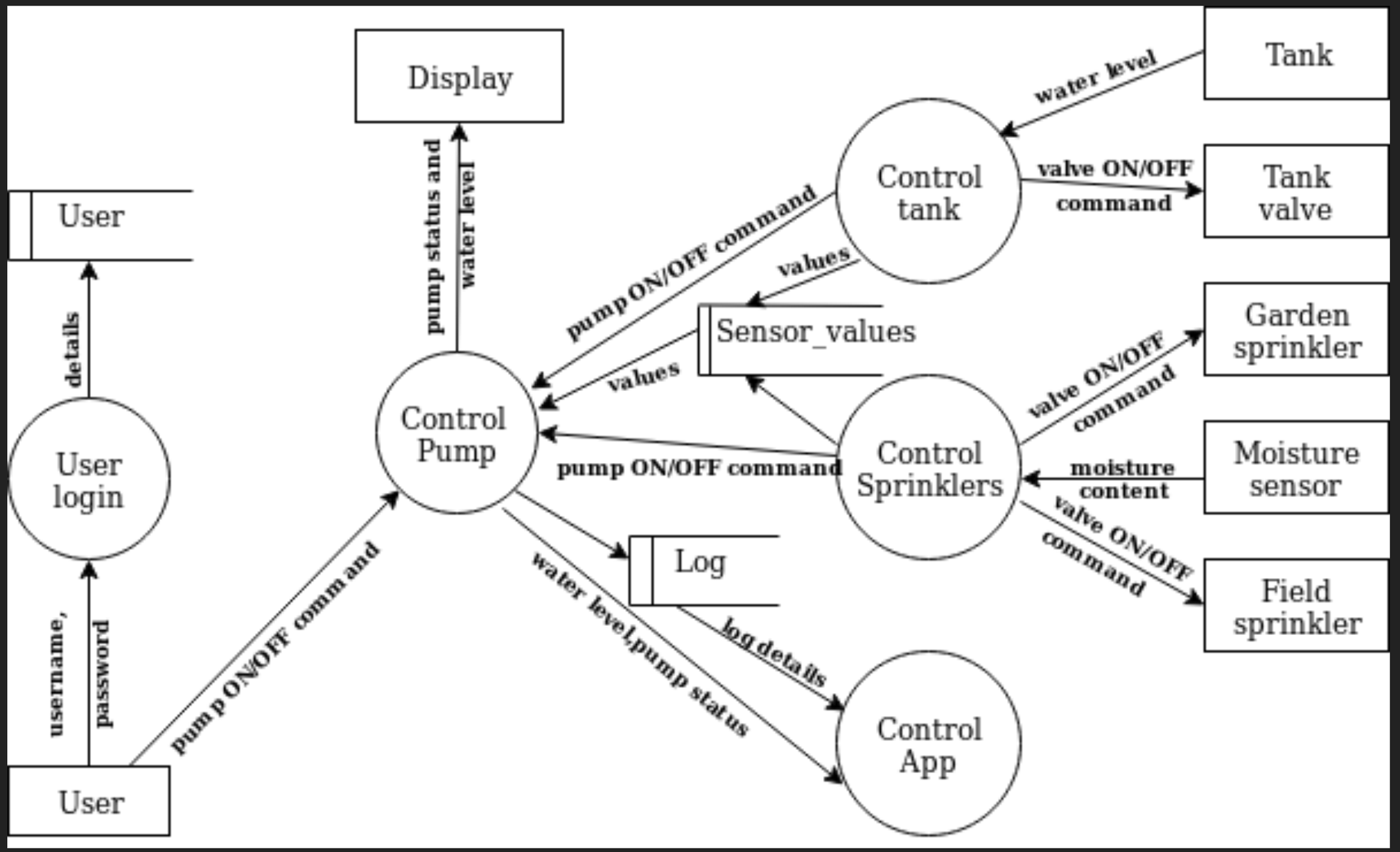
HARDWARE DESIGN – FRITZING DESIGN



LEVEL 0



LEVEL 1


Display
Tank
water level
Control tank
valve ON/OFF command
Tank valve
User
pump status and water level
pump ON/OFF command
values
Sensor_values
Garden sprinkler
details
values
valve ON/OFF command
Control Pump
User login
Control Sprinklers
pump ON/OFF command
moisture content
Moisture sensor
Log
valve ON/OFF command
Field sprinkler
username, password
pump ON/OFF command
water level,pump status
log details
Control App
User

CONCLUSION

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

THANK YOU