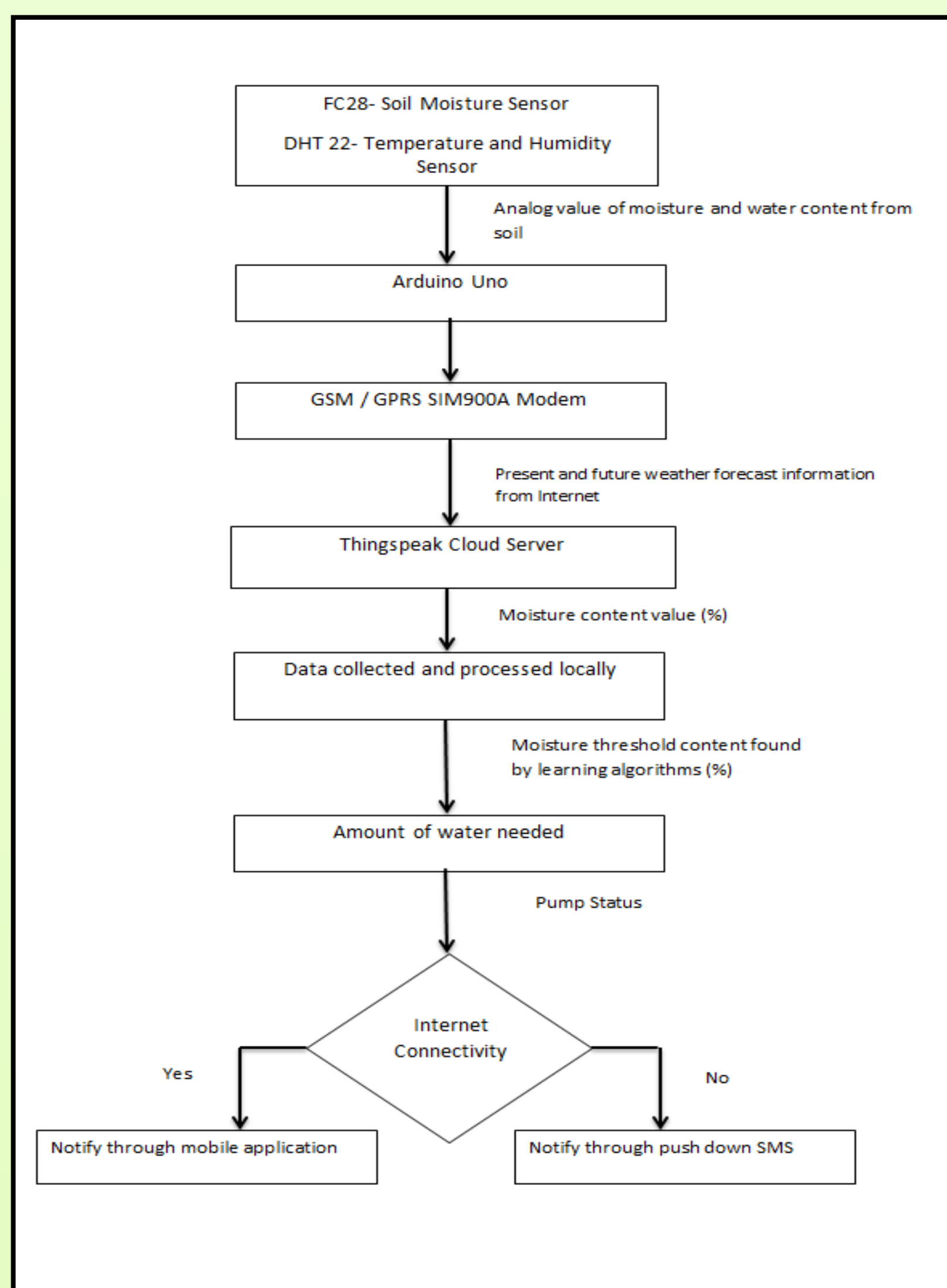


## Introduction

- Various physical parameters like temperature, soil moisture, soil temperature, air humidity, present and future weather reports are considered.
- These parameters will be measured through sensors like DHT22, FC28 and data will be processed locally.
- Linear optimization system, which is essentially the brain of our system is able to make decisions regarding water distributions.

## System Model



## Hardware / Software Requirements

### HARDWARE REQUIREMENTS:

- Arduino Uno Board with Wi-Fi Integrated – ESP12E UART
- Temperature sensor - DHT 22
- Soil Moisture Sensor – FC28

### SOFTWARE REQUIREMENTS:

- Android Studio
- Python and data analysis tools.



## Working Methodology

- Values from DHT22 and FC28, weather forecasts from internet are collected and stored locally.
- The training data will be modelled using algorithm to determine the threshold value for soil temperature , soil moisture and water level required.
- If the test value exceeds the threshold value, then the farmers will be intimated to irrigate the land along with the details of the amount of water in the form of a pushdown message into the mobile application.

## Expected Results



- Developing the livelihood and improving the method of agriculture.
- Optimized methods of estimating irrigating patterns.
- Proper analysis of physical parameters to arrive at an optimal solution.
- An android application that notifies the farmers at the time of need for irrigation.
- Text to Speech conversion to bridge the knowledge gap.

## Advantages

- Timely irrigation of crops and resulting high yields.
- Efficient use of the available resources of water.
- Use of weather forecast data enables cutting down on irrigation on rainy days.
- Real time estimation with continuous measurements at same locations.
- Save a significant amount of money on your water bills because through intelligent control.

## Limitations

- Interrupted internet connectivity.
- In case of internet failure, SMS alert can be sent to the farmers.
- Misplaced or disconnected sensors.
- Erroneous outputs from sensors.
- Sensors will have to be periodically checked.
- Slow response to changes in soil water content.
- Lack of accuracy in sandy soils due to their large particles.

## Conclusion

An IoT dependent android application or web application that notifies the farmers with the optimum level of water that has to be used to irrigate the land.

