# NON-FUNCTIONAL AND FUNCTIONAL REQUIREMENTS OF SMART HYDRO

## Functional:

1. The tent must be equipped with sensors capable of accurately detecting and reporting humidity and temperature levels.
2. Ventilation fans must automatically activate when predefined humidity or temperature thresholds are exceeded.
3. The irrigation system, controlled by a timer pump, must operate for a user-defined duration based on input parameters.
4. Users must have the capability to monitor plant conditions remotely, without being physically present in the tent or fodder system.
5. Users must be able to remotely control the lighting system, with the option to activate lights at any desired time.
6. Add functional graphs that display raw data from the tents/tunnels.
7. Logging all AI activities the Arduino performs to monitor plant growth.

## Non-Functional:

### Usability

* The mobile application must feature a large, high-contrast user interface to accommodate elderly users and enhance visibility.
* The application must prioritize usability, with intuitive navigation and a simplified layout to facilitate interaction with various control components.
* The application must perform efficiently regardless of the device specifications, ensuring consistent operation even on older or lower-end smartphones.
* Fix the current language preferences in the existing application.

### Reliability

* The system must maintain core functionality in offline mode to accommodate users in rural or low-connectivity environments.
* The application must function consistently across different devices and operating systems, ensuring a dependable user experience.
* Remote monitoring solutions must be designed to minimize operational costs, making the system accessible and reliable for resource-constrained users.

### Performance

* The application must deliver high responsiveness and performance to optimize plant growth cycles through timely system reactions.
* Cross-platform compatibility must be ensured, allowing the application to operate seamlessly across a variety of devices.
* The pump for EC down must be updated to output an appropriate amount of water.

### Security

* User authentication must be implemented to prevent unauthorized access to remote control features. (Commercialised version)
* Data transmitted between the application and sensors, or control units must be encrypted to ensure privacy and data integrity.