=

# Bonus features for the app

## Key functionality

### Dynamically set plant information

To extend the Smart Hydro system’s capabilities, the app will support the integration of a dynamic planting system. This system will allow users to select the type of plant they wish to grow, and upon selection, a HTTP request will be triggered to:

* Automatically adjust fodder pump based on the selected plant's growth cycle,
* Modify the nutrient solution quantity delivered,
* Update lighting schedules,

This dynamic configuration ensures that each plant receives optimal growing conditions tailored to its specific needs, all managed directly through the app.

### AI Agents

Offline Agents  
To Take the project further we will have AI Agents that will automate even the app itself whereas in previous years it was only the Arduino that could automate the growth of plants. This here we want to kick it up and automate any things that could go wrong, for example if something were to go wrong with one of the readings for a sensor. This will work locally on the users device however It will be optimized so it does not take up too much of space/CPU resources.  
Online Agent

This agent will be connected to a SQL database that will have access to information specific to this system and the farmers, as well as a NoSQL database that will keep track of all the logs that the actions when the Arduino AI models trigger a pump for example. This agent will be able to fetch information from the internet to help farmers with their plants as well as pet detection.

## User Enhancement

To enhance user experience and support informed decision-making, the app will integrate a weather API. This feature will:

* Check current local weather conditions,
* Provide real-time recommendations on whether conditions are suitable for planting,
* Offer insights into upcoming weather patterns that may affect hydroponic system performance (e.g., temperature, humidity, light exposure for greenhouse environments).

By incorporating environmental data, users can plan planting schedules more effectively and align them with optimal growth conditions.