

Hello, Plantiful user!

This document will take you through the Plantiful experience and make using our system as easy as monitoring crops from home.

The system is divided into three sub-systems: the remote-sensing sub-system, the remote-capturing sub-system, and the website. Need not worry, friend; we will take you through dealing with each sub-system.

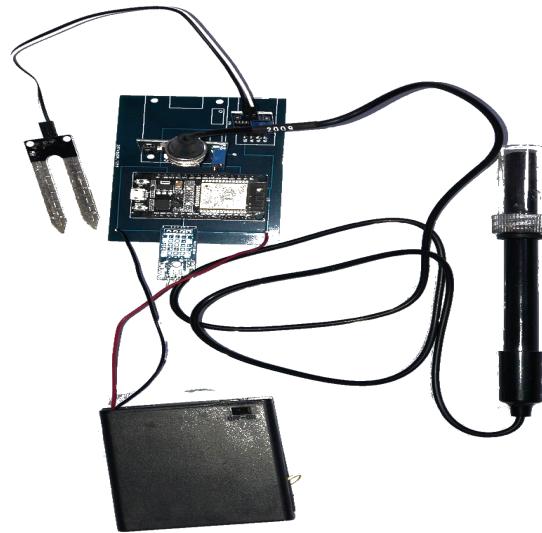
1

Remote-Sensing

First of all, divide your crop into your desired projects and the groups within each project. Sketch the grouping somewhere you remember. Projects differ based on type of or team of the crop. Groups differ based on which plants undergo the same conditions. Also, decide how many monitored plants you need in each group.

In your received package, you should find as many sensor nodes as you ordered. Each

sensor node has a pH sensor, soil moisture sensor, temperature sensor, and humidity sensor like below.



For each sensor node, you should do the following. Add the sensor node's name (on its box) to your sketch indicating which group it is in.

Place the sensor node in each monitored plant you decided upon by inserting the two silver prongs and black rod into about half of the soil's height. Then, turn on the sensor node by the small black button at its top corner.

Do that for all sensor nodes, and bravo, you have completed step one.

2

Remote-Capturing

In your package, you should find cameras in the amount you ordered. Determine which groups you would like to deploy a camera for, that is, which groups whose health and growth you would like to monitor. There is only one camera allowed per group. If you had selected the “fit for robotic car” option during your purchase, you should find each camera mounted on a robotic car. Label the camera with the sticker attached with an ID of your choice. Sure, add that to your sketch as well.

Gently place the car about 10 cm away from any of the two rows for each group you desire for camera deployment.

Connect the camera’s cord to a nearby power source.

After completely clearing the car’s lateral trajectory, turn on the switch attached to the car. We mention again that each car monitors only two rows as it moves then rotates in the same alley (between two rows). Therefore, you

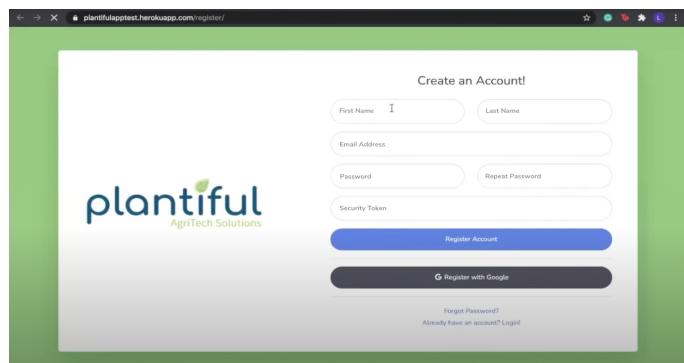
can pick only two rows in each desired group. If you had not ordered the robotic car, attach your camera to your row-scanning system. It is assumed that you already have a mechanical system installed near your crops.

On to the final (and most fun) step!

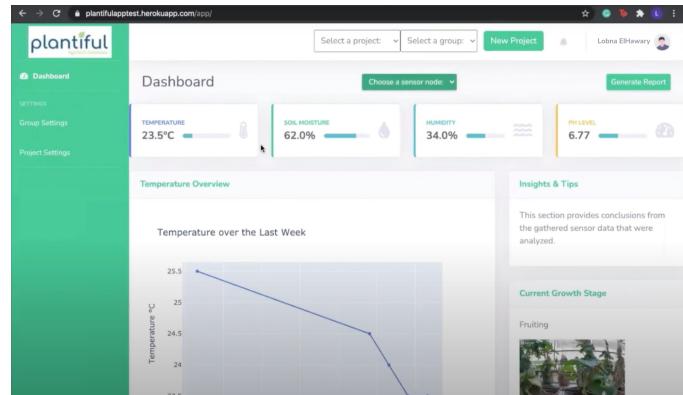
3

Website

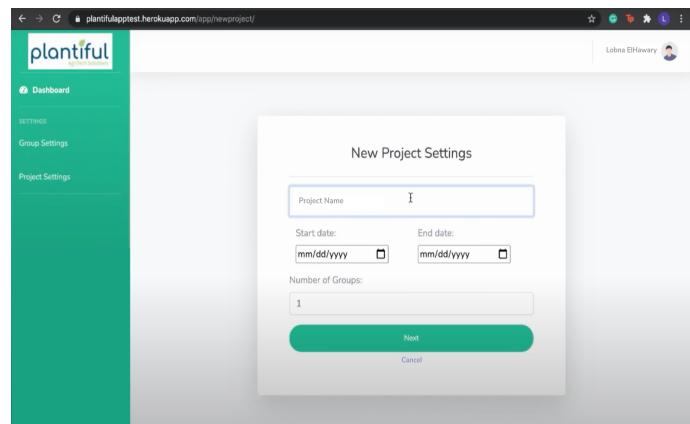
Go to plantifulapptest.herokuapp.com/register/, and complete the registration form below. The security token is found through an email sent to you right after you entered your email.



You will be redirected to Dashboard (shown below) where all the goodies are.



Press on New Project at the top bar. You will be redirected to the page below.

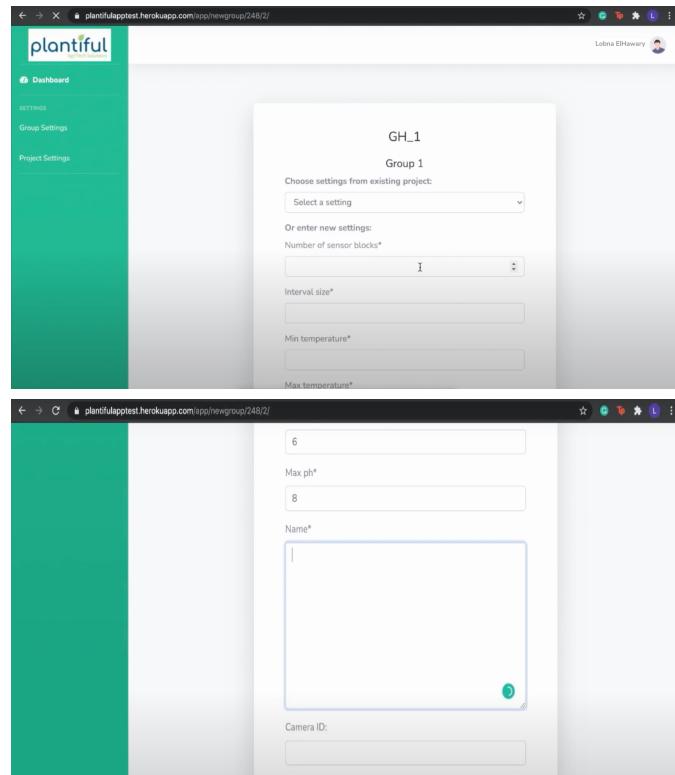


The dialog box is titled "New Project Settings". It contains fields for "Project Name" (with a placeholder "I"), "Start date" and "End date" (both set to "mm/dd/yyyy" with calendar icons), and "Number of Groups" (set to "1"). At the bottom are "Next" and "Cancel" buttons.

Give a name for your project indicating its team or crop type, then specify its start and end dates. The project will not be available in the database outside of those dates, so be careful! Lastly, pick the number of groups you have

decided on for this project. If you don't remember, just look at your sketch.

Upon pressing Next, you should be asked the settings for each group like in the images below.



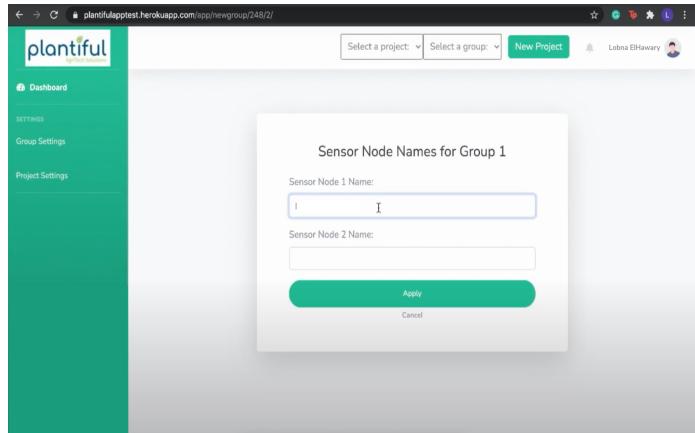
The first input is, of course, not possible now since you do not have any settings to load. So, you must enter the settings manually. Just a newbie thing, it'll be easier once you save these settings and can load them wherever, I promise.

Number of Sensor Blocks refers to how many sensor nodes (and thus, monitored plants) you have in this group. Check your sketch, good citizen! The Interval Size is the period of time between each round of sensor readings and the next. The Interval Size cannot be less than two minutes. Next, enter the safe ranges for pH, soil moisture, temperature, and humidity for this group.

Now, enter a name for all of these settings so you can load into a similar group in the future. Finally, enter the camera ID you chose for this group. Guess where you'd find it if you forgot.

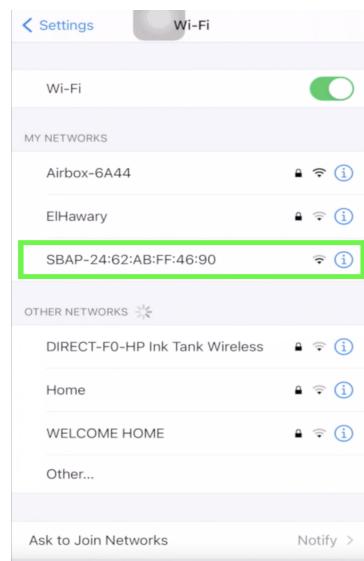
Carry out the same steps for all of the groups, and press Next.

Now, you will be redirected to the page below to configure each sensor node.

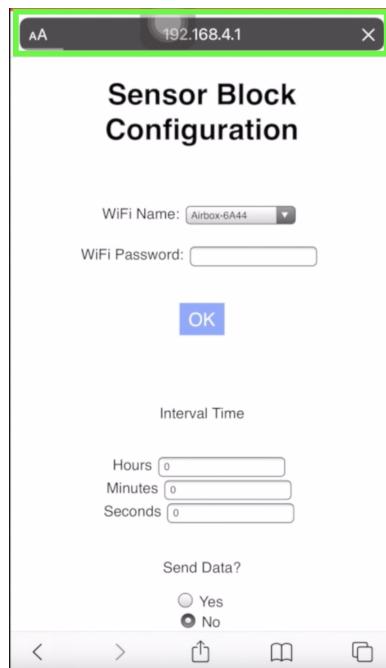


Write the names of the sensor nodes for each group, either from your sketch or on the sensor nodes' boxes if you have them around. Name is case-sensitive.

Once you have entered the sensor nodes names on the website, you will find each name recommended to you in your Wi-Fi list on any of your devices like below.



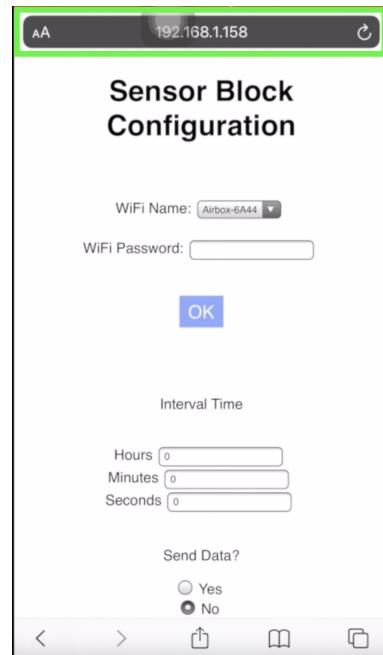
For each sensor node, proceed as follows.
Select the sensor node from your Wi-Fi list.
Type 192.168.4.1 in the search bar of your
device's browser. You will find the webpage
below.



For the input WiFi Name, select the network you would like to supply this sensor node and preferably your whole project(s). Enter the password for this network. Note that the network must be an non-enterprise network, i.e. one that is used for large organizations. Press OK. Specify the interval period again, and press OK.

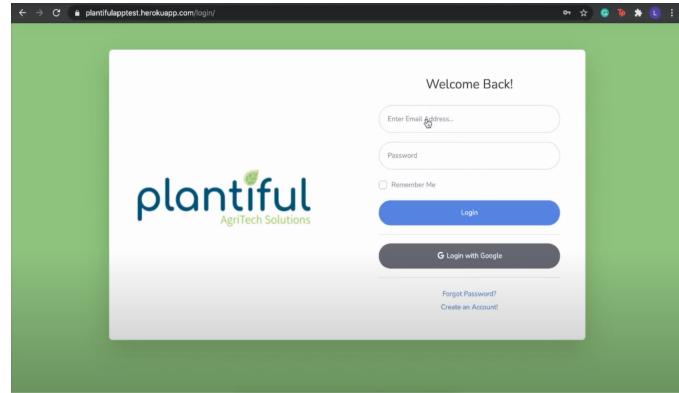
Now, your sensor nodes are connected to the Internet and can deliver the readings!

If you need to change the interval of any sensor node (after you did on the website), type its network's IP address (found in your network settings when you are connected to the network) in any browser's search bar, and fill in the interval period again like in the image below.

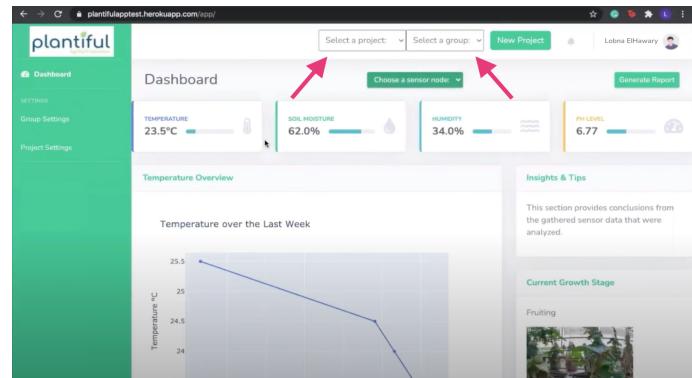


You made it! Now you get to revel in the delight of monitoring all your groups.

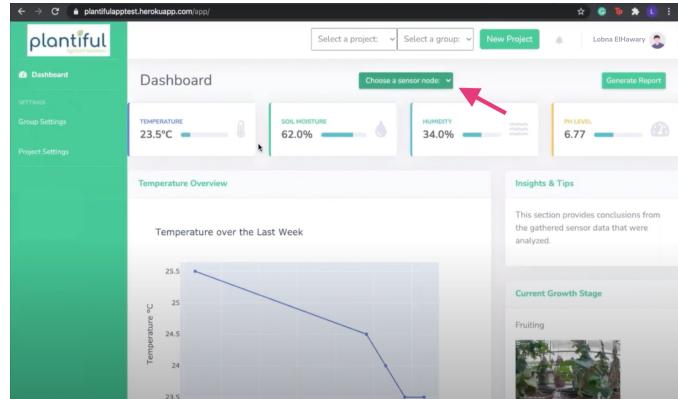
Go to plantifulapptest.herokuapp.com/login/, and enter your credentials as shown below.



Again, you will see your Dashboard. In the dropdown list in the top bar, select the project you would like to see. Then, in the dropdown list to its right, select your desired particular group in that project, both marked below.



Under the top bar, you will find a dropdown list from which you can specify the sensor node in the selected group like marked below.

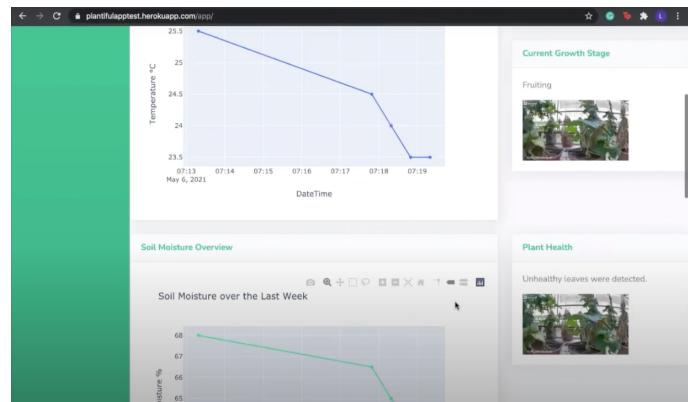


After doing so, you can see the real data for this very sensor node like in the image above. The latest sensor readings are the four numbers below the sensor node list. Under the four numbers, the weekly graphs are displayed. They illustrate the fluctuation of each sensor across the past week.

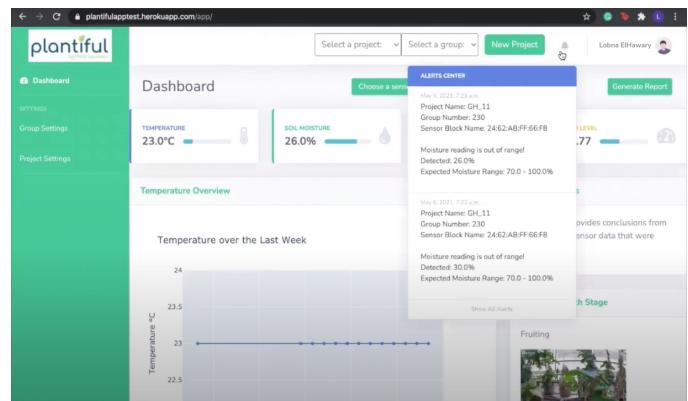
To the right of the first graph, you will find the latest taken image from this sensor node under Current Growth Stage, that is, if the sensor node is associated with a camera, of course. This section reports whether each of the daily captured images shows a plant in the initial, flowering, or fruiting growth stage.

Under Current Growth Stage, you can see in the Plant Health section below if any of the daily captured images contains unhealthy

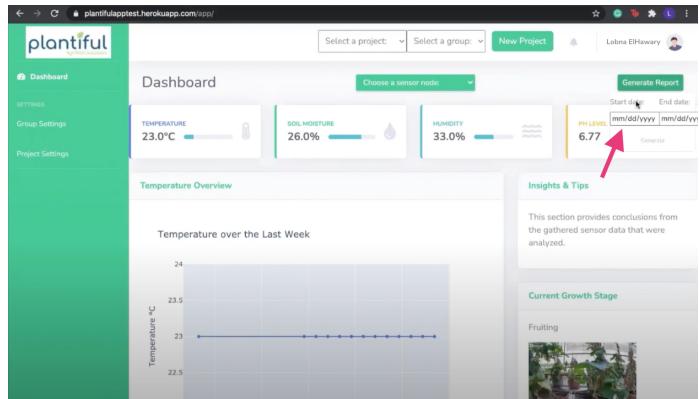
leaves. The image will not be reported if it is completely healthy.



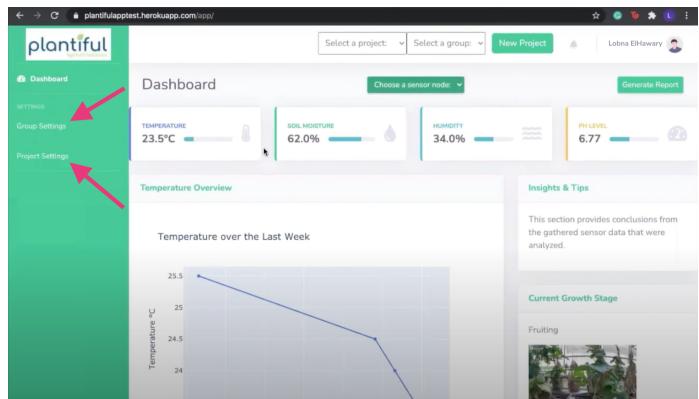
Also, to the right of New Project, a press on the bell button shows the Alerts Center below, a list of alerts regarding any out-of-bounds sensor readings. An email is sent to you for every alert as well.



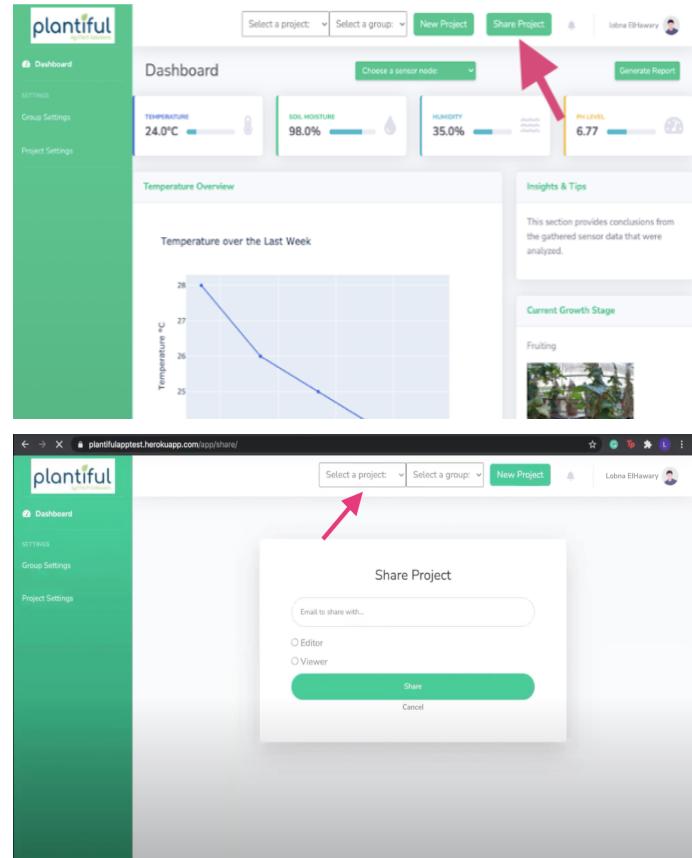
To the right of the sensor node dropdown list, Generate Report allows you to download a CSV (form of spreadsheet) file containing all the sensor readings, including their timestamps, for a period that you specify as shown below.



In the navigation pane to the left, you can click on Group Settings or Project Settings to change either as marked below.



Finally, you can click on Share Project to share the whole project with another user.



The sharing can be anyone, whether as an editor or a viewer. An editor can view data and change settings, whether project or group, while a viewer can only view data. The sharing recipient receives an email invitation to register that includes a security token in case they are not an existing user. If they are already a user, they will see the project directly!



And there you have it, complete monitoring of all your crops.

We hope your harvest is plentiful.

Welcome to Plantiful.

