**Prototype: Garden Care**

**Overview:**

For Garden care we have two devices that is garden sensor and water valve which is describe below.

**Garden Care Sensor:**

**What is the Garden Care Sensor?**

The Garden Care Sensor keeps you connected to your garden and you always know exactly what's needed to keep your soil and plants healthy. Just plant the solar-powered sensor in your garden to continuously monitor environmental conditions. The device connects to your Wi-Fi network and sends you information insights to your phone in a real time.

**Nonstop monitoring:** Garden Care tracks moisture, light, temperature, humidity, and soil nutrition.

**Guidance of Real time:** Get personalized tips and notifications based on your garden’s conditions and the weather forecast.

**Garden diagnostics:** Garden Care analyzes your garden to notice which plants will grow best given your specific conditions and climate.

**Wi-Fi connected:** Monitor your garden from anyplace.

**What does the Garden Care Sensor measure?**

**Soil Moisture:**

Your Garden Care Sensor reports soil moisture in units of percent volume of water.The full volume of your soil (100%) is broken down into the solid soil particles and roots (usually 50-75%), air, and the liquid water that coverings the soil particles and fills the air space. The Garden Care Sensor has been adjusted to take into account the ways soils interact with the charged surface of the sensor tip, so placing your sensor in a glass of water will not yield values of 100%. The sensor stem sends out a series of very minor electrical pulses to the soil in every 10 minutes, and measures a changes to those pulses over time.

**Light:**

The Garden Care Sensor measures light as a voltage through the solar panel that gives powers to your sensor. In some places, light levels get so high that they can burn plants (observable when parts of the leaves turn a crispy yellow color, then quickly die back). Being able to track light stages can be very helpful in deciding whether it is time to put up shadow cloth. Historical light level readings are also used by Garden Care to power the garden composition suggestion engine.

**Temperature:**

The temperature readings from the Garden Care sensor are much more localized than local forecasts, which typically measure air temperature some meters above the ground. Bare soil and direct sun can lead to a garden experiencing temperatures much higher than the local forecast would suggest. Placement relative to walls, trees, etc that shade your garden can also leading to temperatures which are significantly differ from the local weather forecast. High temperatures can result in increased water loss to the atmosphere, and knowing how temperature, light levels, and humidity combine in your garden can help inform localized drought predictions for your garden. Planting shade trees are two natural ways to lower garden temperatures to protect gardens if you live in a hot environment.

**Humidity:**

Humidity is sometimes an under-appreciated variable for gardeners. Every time a leaf opens its pores to pull in carbon dioxide, it also releases moisture back into the atmosphere. When the humidity is very low whether it’s hot and dry, a lot of moisture can be vanished through evaporation. This increases the likelihood of daytime wilting, even when the plants are regularly getting water. Humidity is lowest in full-sun, therefore, high light levels and temperatures have an influence on the humidity that your plants experience. There are two types of wilting to consider. The first is from general drought stress, where the plant is under such dry soil conditions that it can no longer maintain rigid cell structure and internal support. The second is daytime sagging of leaves from dry air, this is an adaptive mechanism that many plants have to reduce their exposure to the drying sun and dry air (the pores of droopy leaves don’t let out as much moisture through ET). If your plants don’t naturally regain rigidity in the evenings, they risk chronic dry-soil induced wilting. If your plants are capable to recover in the evening without additional water, then they may simply need shading for best performance, reducing the drying and heating influence of mid-day sunlight.

**Soil Nutrition:**

The Garden Care Sensor nutrition reading comes from the electrical conductivity of your soil. Electrical conductivity is a holistic way of looking at the nutrient status of your soil and is a result of the caption exchange capacity (CEC), carbon content, and physical properties (drainage, pore space, and soil type among others) of your soil. The majority of the nutrients that your plants require for optimum growth are in the form of captions & anions, and your plants’ ability to access these nutrients are related to the above soil properties. For this reason, your Garden Care sensor does not give you measurements of specific nutrients in your soil, but instead, a measure of relative soil condition required for ideal nutrient delivery. Some soils naturally have a higher electrical conductivity, such as clays, and others particularly low, such as quartz sands.

**Garden Care Water Valve:**

The Garden Care Water Valve tailors water system occasions to coordinate your garden’s needs. The valve naturally controls your current water system framework in light of the nearby climate estimate and the plants you have in your garden, if utilized as a remain solitary framework. The valve interfaces with your Wi-Fi arrange so you can control it from anyplace utilizing your cell phone and the Garden Care application. Spare water, bring down your service bills, and never stress over thirsty plants again.

**Smart watering:** Garden Care waters your plants in view of the climate and the readings from your Garden Care Garden Sensor. Not any more running your sprinklers in the rain.

**Manual watering**: Design your own watering timetable to meet your particular needs. This capacity does not require Garden Care Garden Sensor. Proficiently deal with your water utilization. Set the season of day and greatest span utilizing your cell phone.

**Wi-Fi connected**: Easily control your Water Valve through your telephone. Remain associated with your garden from anyplace.

**Made to live outdoors, just like plants:** The Garden Care Water Valve is impervious to sun, rain, dampness, regular composts, and pesticides. The rechargeable battery is sunlight based fueled.

**Monitor real-time conditions:** Add the Garden Care Garden Sensor to persistently screen natural conditions in your garden, including soil dampness