

Budgeting Expenses and Feasibility

Our budget is £75 in total.

Cost of parts:

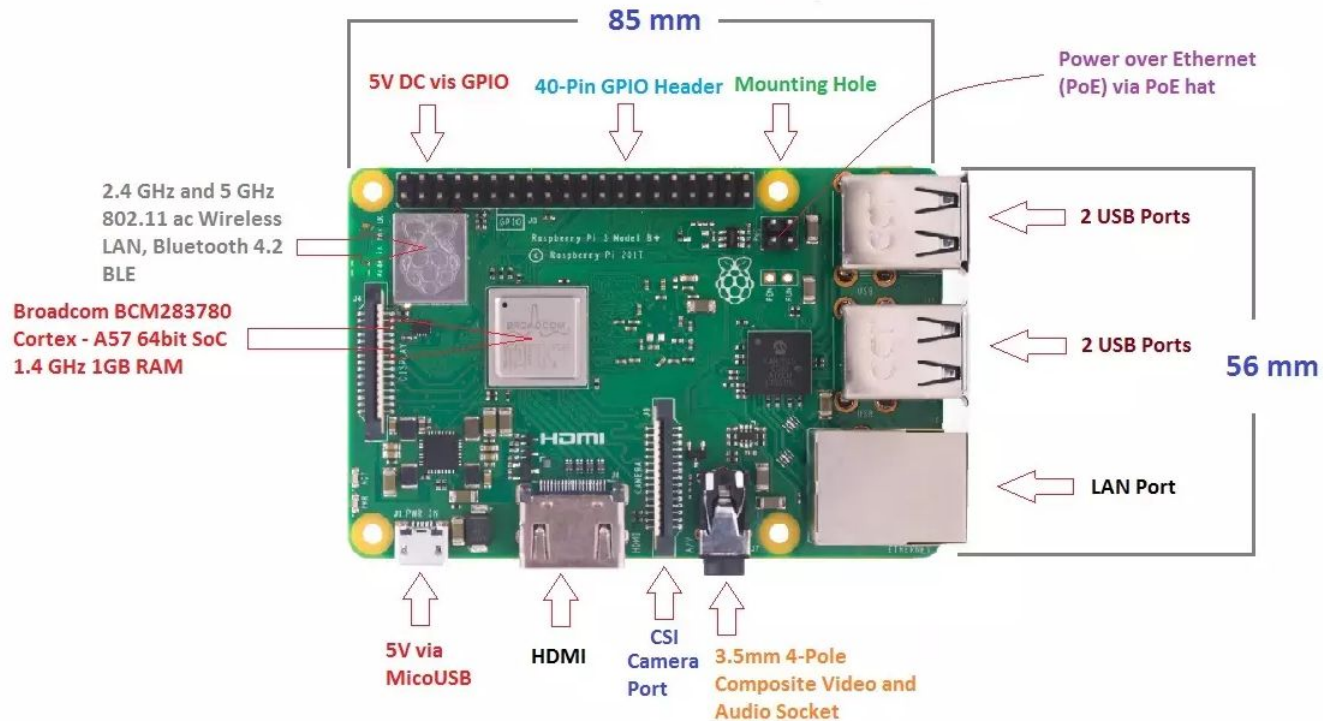
- Raspberry Pi 4 - £40
- Raspberry Pi 4 - £3.90
- Monk Makes Plant Monitor - £9
- 3.5" touchscreen display - £20

Total = £72.90

The finished cost is within budget and we plan to use the remainder for any additional 3D printed components. We are also using it for marketing/promotion materials such as printing.



Raspberry Pi 4 Functionality



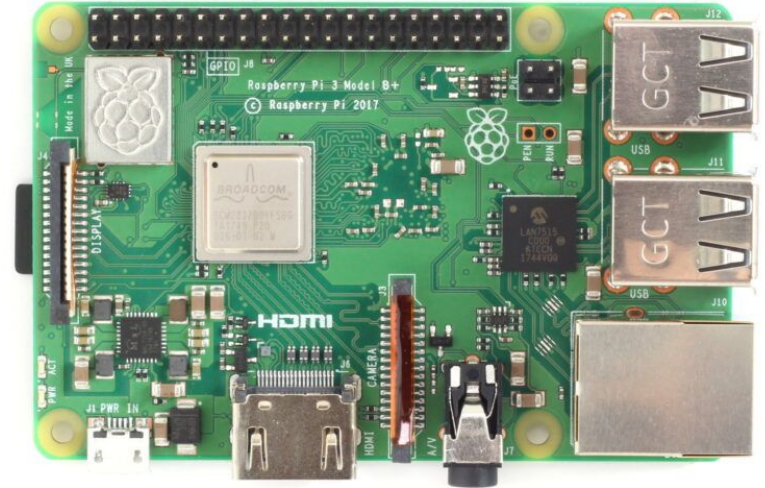
Raspberry Pi Chips

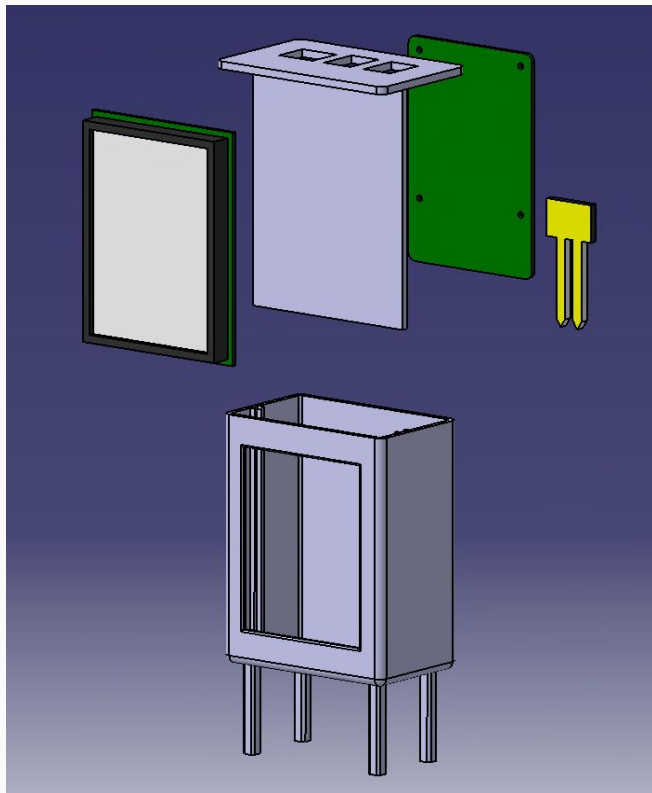
The chip to be used in our prototype is the Raspberry Pi **4** and **Pico** for the screen interface.

This choice was made as it is the one of the most effective options in terms of price to performance for the given applications.

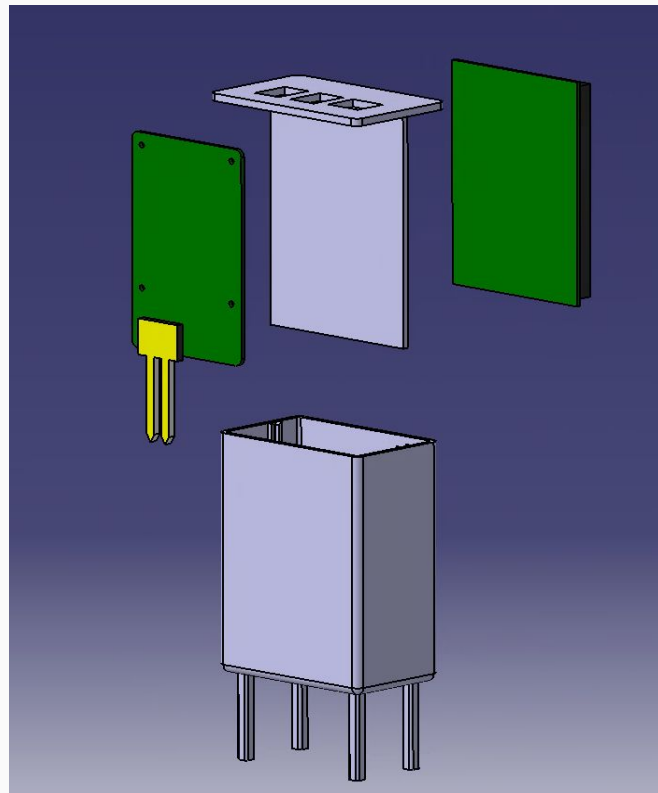
The Raspberry Pi chip is assessable to three options. It can collect and store the data in a safely and securely using a firebase (cloud Database).

It can display real time data during on field assessments using an LCD Display. It can also use any local hosted webpage to display the real time data on any internet enabled device and get suggestions for the solid sample.

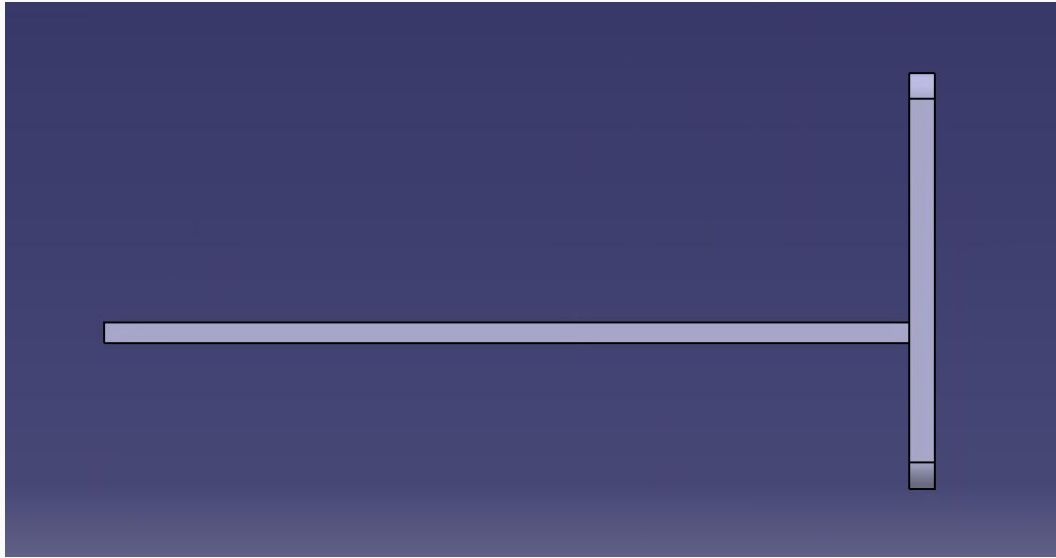




Front



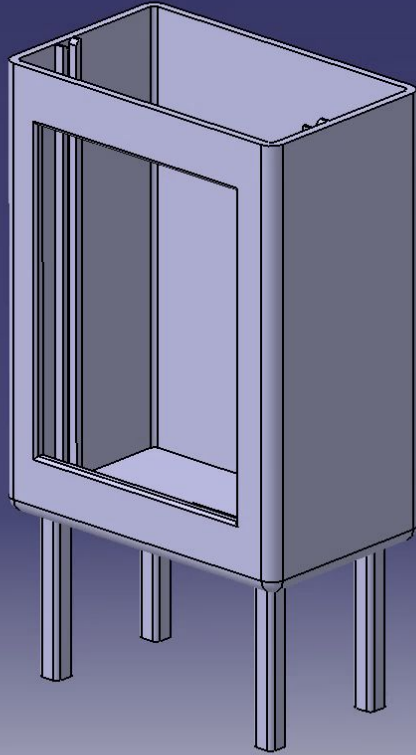
Back



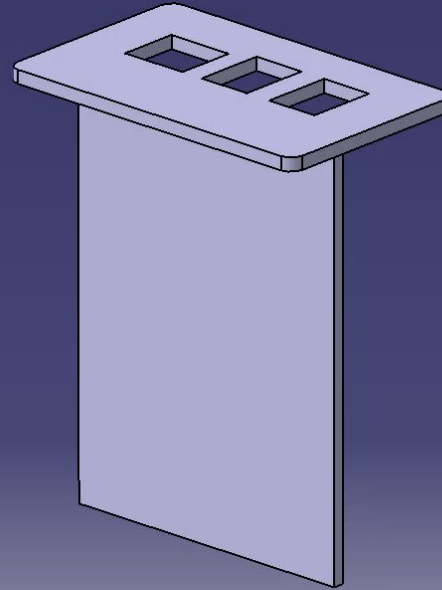
This is the "drawer" piece that slides into the outer shell. The bigger half is where the Raspberry Pi will be mounted, and it is taller in order to accommodate the Pi's ports as well as sensors and wires we'll be plugging in. The smaller side at the bottom is where the screen will be mounted.

The purpose of this slide to allow for quick removal and installation of the internals from the shell
- in one push or pull.

Outer Shell



Slide/Caddy

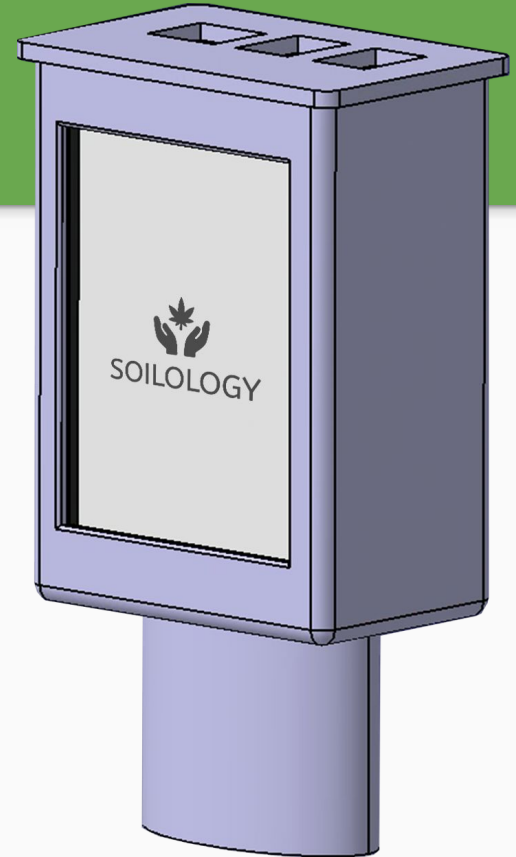


Soilology Soil Health Monitor

We introduce to you the **Soilology Soil Health Monitor**.

Our monitor is a 3-in-1 package, coming with sensors that determine a soil samples' moisture, temperature and humidity levels to help ensure it is prime for crop/plant growth or determine its condition for research.

All are controlled by a Raspberry Pi 4 chip which collects and processes data from the sensors and clearly displays the results in-app or in real time on the 3.5 inch screen.



The Effect of Soil Health Monitors

What if there was a simple practice that when implemented regularly would provide opportunities for informed decisions, reduced risks, increased profit, improved confidence and act as an early warning system for unintended consequences arising in your land management system? This is where soil monitoring comes into play. Soil condition monitoring allows farmers to collect data about rainfall, temperature and other metrics over time to track trends and predict irrigation needs.

Monitoring your soil health on a regular basis will provide all these benefits and yet many land managers struggle to make it a priority to commit to regularly monitoring their soil health.

We believe that we have the perfect soil health monitor design which can test all important data needed specifically for soil health. Our design is easily accessible to all members of the community, ranging from young kids right up to older, more mature members of the community. Our monitor is lightweight, easy to use and can be used on any type of soil.

Problem Statement

In many areas around the country, the consequences of floods can be observed.

Floods can affect the progress of agricultural production, as well as the locations of aforementioned production as an agro-climatic zone. They destroy the landscapes in which they affect and even impose as a danger to health, safety and life.

Soil degradation has disastrous effects around the world, such as landslides, an increase in pollution, desertification and a decline in global food production. One of the biggest threats to our future food security is land degradation and the associated loss in soil health and integrity.

