Prototype Submission Phase

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- *Event* : Thales GenTech India Hackathon 2024
- *Theme* : Ecodesign

Problem Statement

➢ Challenges :

- ***Water Mismanagement*** **:** Overwatering or underwatering reduces crop yield
- ***Lack of Tools*** **:** Small-scale farmers often lack access to affordable, reliable soil moisture monitoring devices.
- ***E-Waste Issue*** **:** Discarded electronics create environmental hazards.

Proposed Idea

- Soil Moisture Indicator Using Upcycled Materials
- Made with upcycled materials like magnets, springs, and old phone parts.
- Easy to use and maintain.
- *Eco-Friendly :* Recycles e-waste into a useful product i.e. encourages sustainable farming practices.
- *Cost-Effective :* Affordable for small-scale farmers. It can be replicated in other regions with minimal cost.
- *Practical :* Easy to use without technical expertise. Better water management and Improved crop yield.
- *Designed for easy part replacement :* damaged components like levers or magnets can be swapped out without hassle.

Materials Used

Springs – (They are obtained from old broken toys)

Old nails

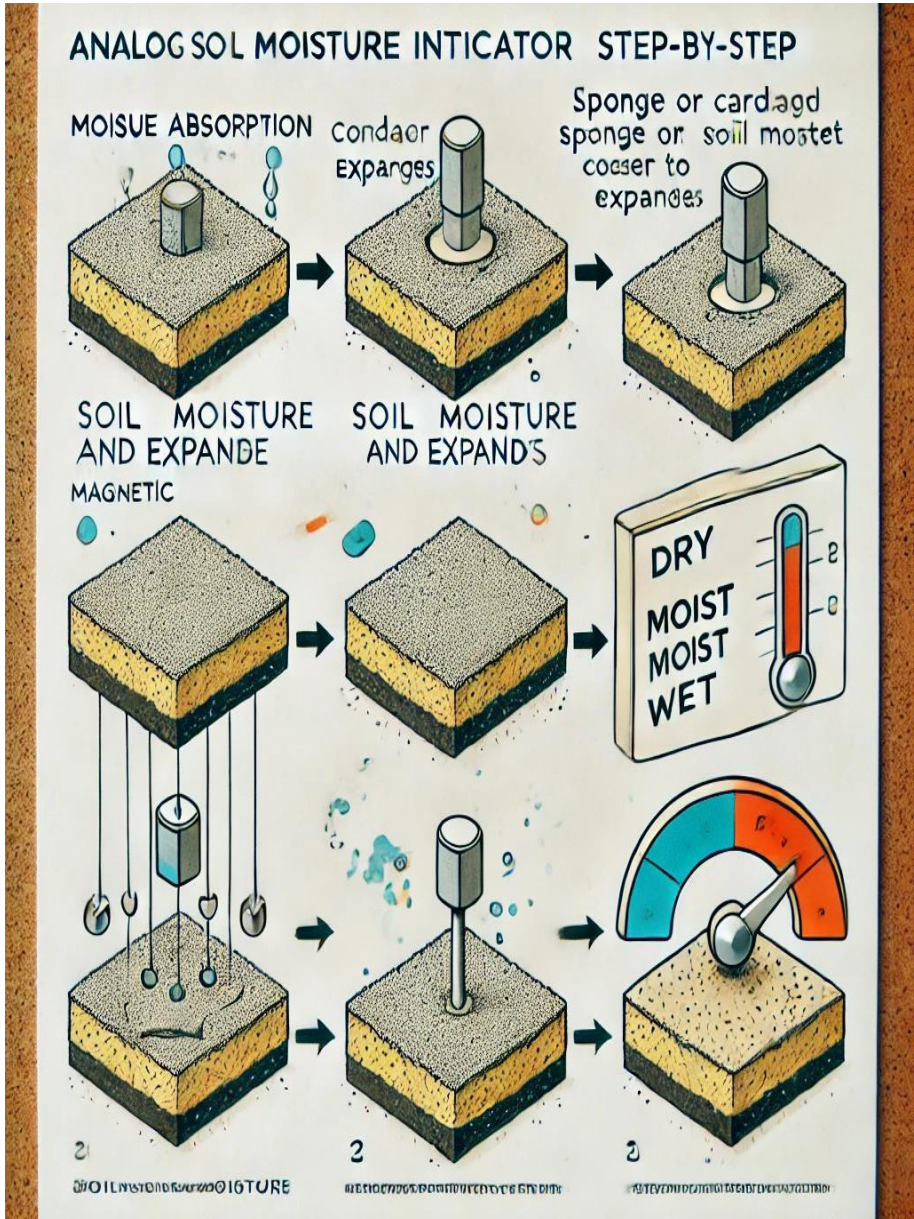
Casing from damaged keypad mobile.

Old magnets – (They are obtained from old electronics components)

Sponges – (They are obtained from clothes store)

METHODOLOGY

- ***Base :*** The old mobile phone casing serves as the housing, providing durability and compactness.
- ***Lever :*** An old nail or watch part functions as a simple yet effective lever mechanism.
- ***Scale :*** A straightforward scale is marked with indicators like *Dry*, *Moist*, *Wet* for easy interpretation.
- ***Moisture Absorption :*** Sponge/cotton expands when soil is moist.
- ***Magnetic Movement :*** Expansion moves the magnet, triggering the lever mechanism.
- ***Pointer Display :*** The pointer shifts on a scale to show "Dry," "Moist," or "Wet."



Working Prototype

- *Idea Generating Video :*
  - https://www.youtube.com/watch?v=iDYcOW62mAw –
- *Idea Implementation Video :*
  - https://www.youtube.com/watch?v=0FSBdF5oU7U

Explicit emphasis on the impact within Thales's key business domains

Thales Alenia Space contributes as well to five of the six new Copernicus Expansion missions, three as prime contractor (CIMR, ROSE-L, CHIME) and two as payload supplier (CO2M, CRISTAL). These new satellites will be used to measure the atmospheric carbon dioxide (CO2) produced by human activity, monitor sea ice thickness and overlying snow depth, provide improved services for sustainable agriculture and biodiversity
management, observe ocean behavior, and support precision agriculture and food security.

My idea towards developing an instrument was totally inspired from these projects of Thales. The way Thales is working on sustainable development is inspiring the whole world towards sustainability.

Advancements can be done on my instrument by implementation of sensors and other digital techniques.

My gratitude towards Thales, for this great initiative of GenTech Hackathon 2024, as this will not only produce quantitative ideas but also qualitative solutions for the upcoming environmental, digital and generative-AI challenges.


Thank You !