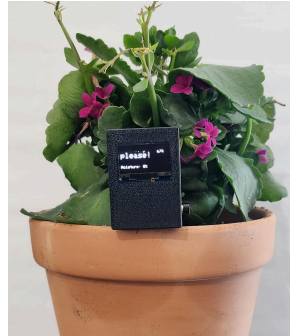


Soil Monitor

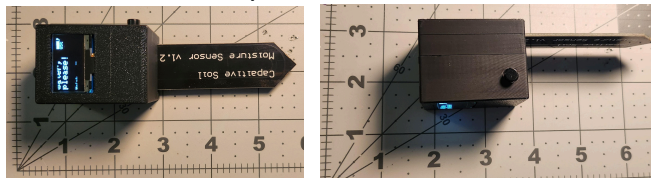


Overview

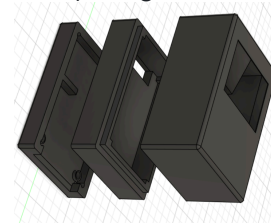
A small soil moisture monitor with an integrated LiPo battery and rechargeability built in. It has an OLED display showing battery charge, moisture percentage, and whether to water or not, it is compact and dead-simple for plant lovers. Measures 119mm x 37mm x 34mm, weighing only 52g. Uses a 3D-printed enclosure modeled from scratch in Fusion 360.

Photos

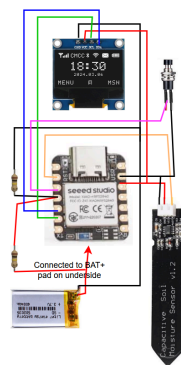
Top / Side Views



Enclosure (Designed in Fusion 360)



Wiring



Component	XIAO nRF52840 Pin
OLED (SSD1306, I2C)	SDA → GPIO 4 SCL → GPIO 5
Moisture Sensor	A1 (Pin 1)
Battery Voltage Divider	A3 (Pin 3) via 100kΩ–100kΩ
Wake Button	GPIO 2 → GND
Battery	BAT+ pad + GND pin

Code

- Open Arduino IDE, select 'XIAO nRF52840 (No Updates)'
- Connect the Seeed Studio XIAO nRF52840 board to your machine
- Upload SoilMon.ino file in the project files here

Lessons Learned

- Define power & size constraints before wiring & coding
- Power/ground rails simplify small builds
- Small enclosures need tighter tolerance testing
- Moisture thresholds are plant & environment specific
- Soldering on tiny boards increases short-circuit risk

Full build log, code, and files: <https://github.com/ChandlerEx/Projects>