

Developing a Sensor-Based Mapping System for Soil Characterization

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BACKGROUND & MOTIVATION

RESULTS

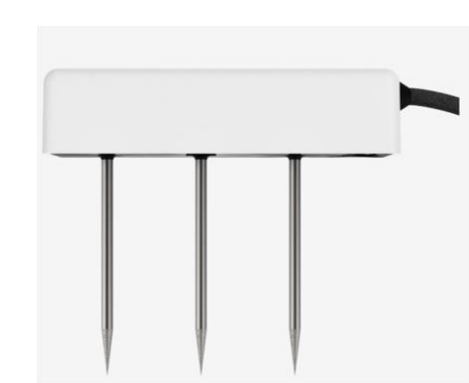
Polluted Soils



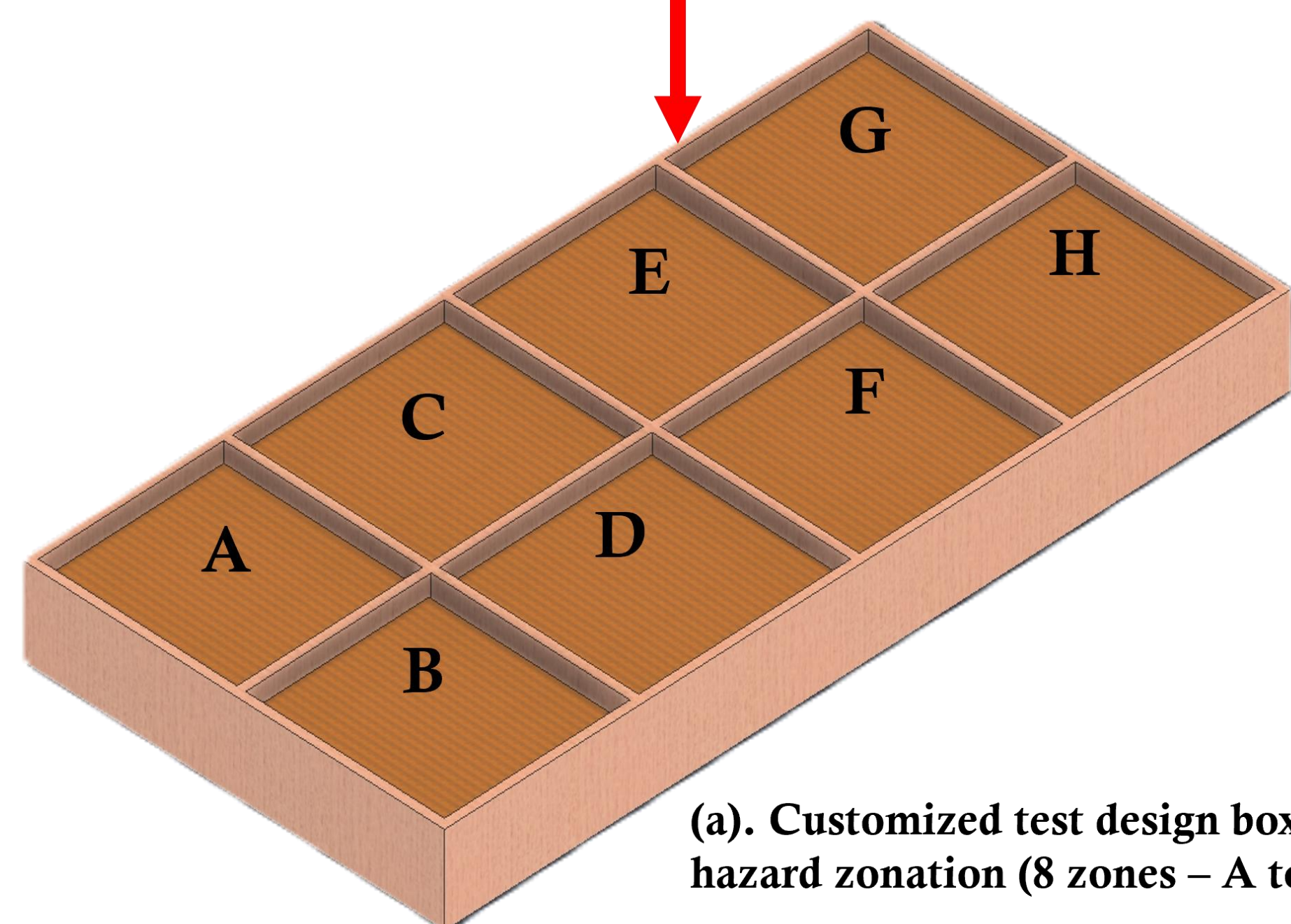
METHOD

(b). Sensor Probes

(c). Microcontroller



(d). Data Processing

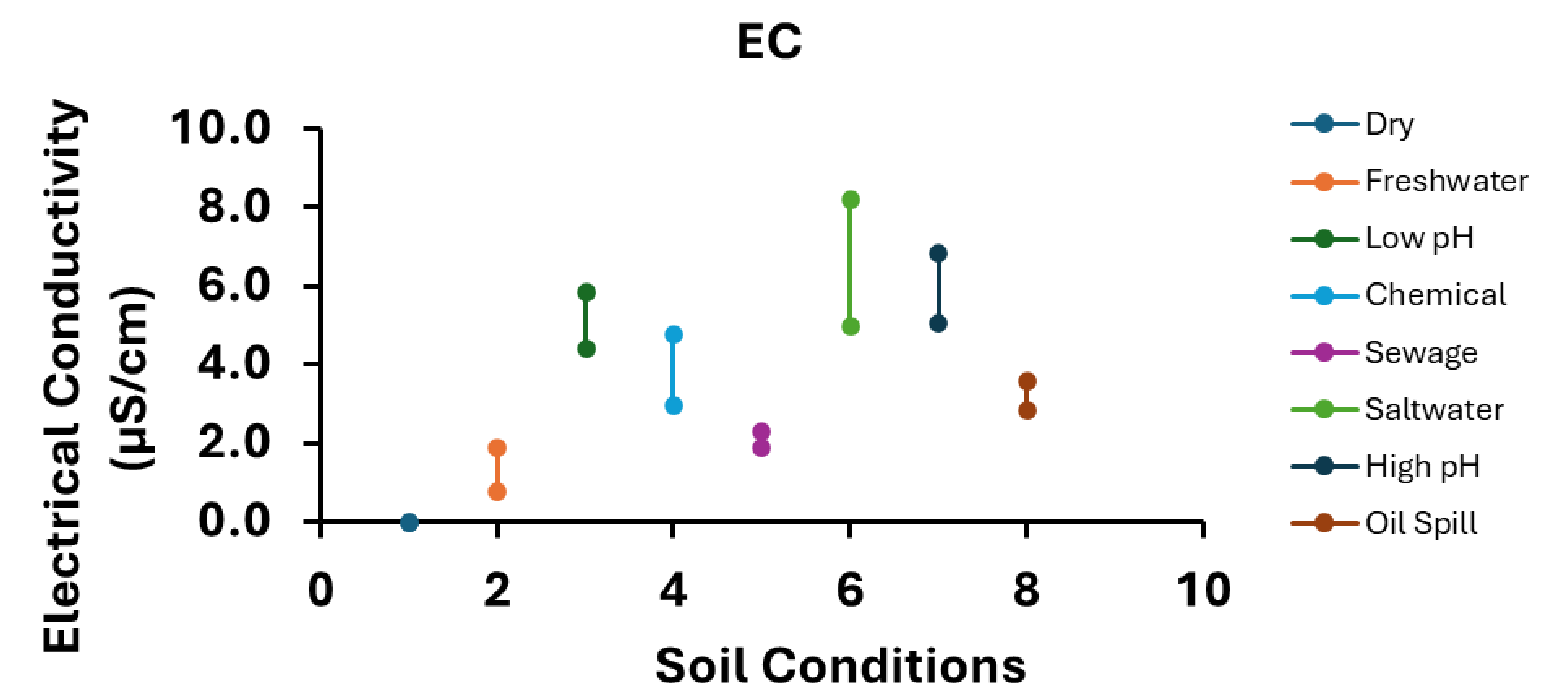
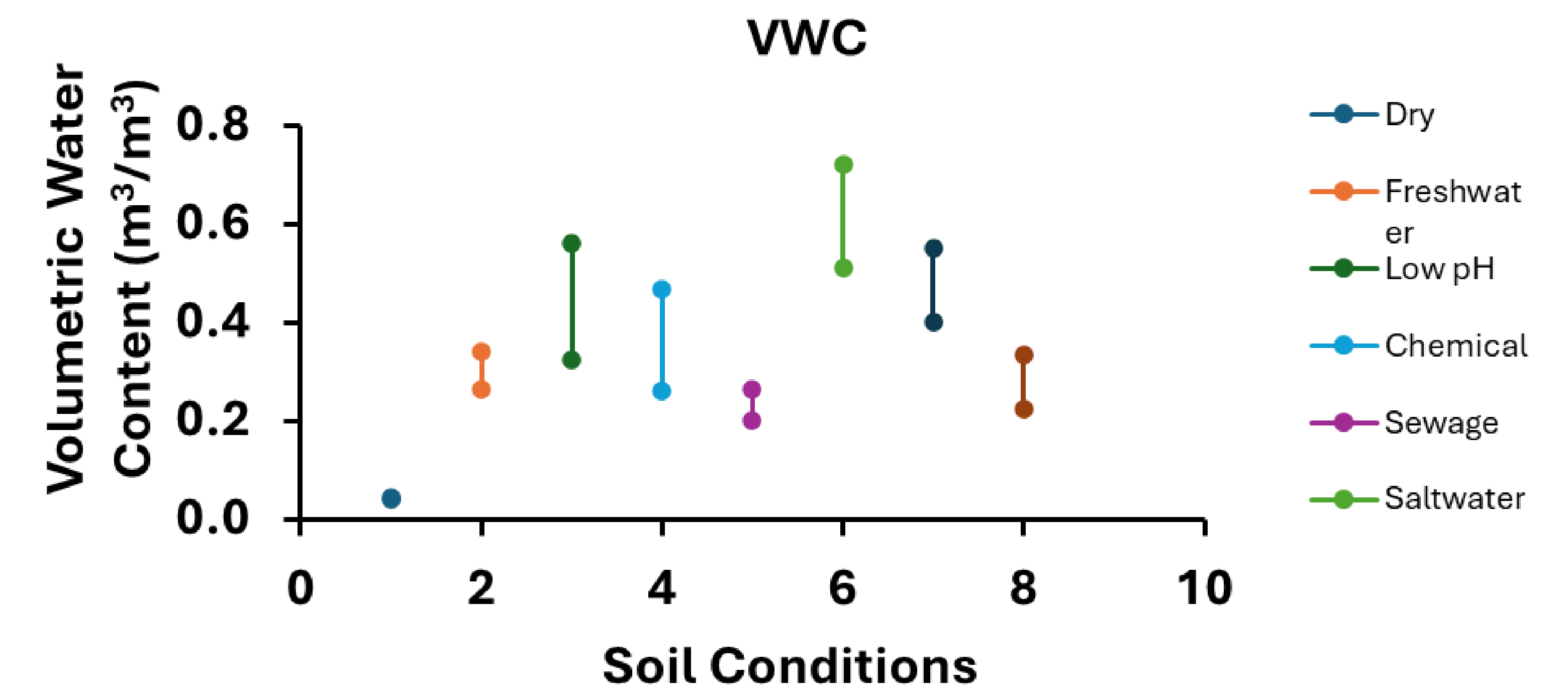


(a). Customized test design box for hazard zonation (8 zones – A to H)

- Customized soil test box divided into 8 contamination zones.
- Contaminants: dry soil, freshwater, saltwater, high pH, low pH, oil, sewage, & chemical solution.

Legends

A – Dry soil
B – Soil saturated with distilled water
C – Soil contaminated with brine
D – Soil with low pH
E – Soil with high pH
F – dishwashing soap contaminated Soil
G – Soil contaminated with oil spill
H – Soil contaminated with sewage



CONCLUSIONS

- The sensor-based proofing system effectively detects and differentiates soil contaminants.
- It generates accurate contaminant maps with geotechnical relevance and demonstrates potential for real-world soil geohazard mapping.

ACKNOWLEDGMENT

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