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# MOISTURE SENSOR FOR SOIL MONITORING

## AGRICULTURE

Hydrogel-based sensor to determine moisture content, pH level, and electrolyte concentration in soil.

### TECHNOLOGY TYPE

Sensors & Systems  
Devices  
Crop Management

### STAGE OF DEVELOPMENT

- Pilot system demonstrated.

- Ongoing work to test the sensor in soil.

### LEARN MORE

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### TECHNOLOGY SUMMARY

Water is one of the most valuable resources on the planet, but climate change and population growth have put a strain on the available freshwater supply. The National Integrated Drought Information System reports that 25 percent of land and more than 65 million people in the United States are affected by drought. Despite campaigns and regulations used to conserve water, up to 60 percent of irrigation water is wasted.

A novel moisture sensor facilitates water conservation and smart crop management by monitoring soil conditions. The *Moisture & Pressure Sensor* consists of a hydrogel coupled with a piezoresistive sensor that measures moisture, pH, and electrolyte levels. The degree of swelling/deswelling in the hydrogel is indicative of soil conditions to provide real time data about water needs. The sensor then communicates with a central unit that controls the irrigation system to ensure automatic, appropriate watering of crops, flowers, and grass.

### FEATURES AND BENEFITS

- Enables monitoring of soil conditions.
- Supports automatic, appropriate irrigation.
- Facilitates soil quality assessment and remediation.
- Demonstrates potential to reduce costs by conserving water.
- Increases accuracy by relying on localized sensors rather than weather forecasts.

### INVENTOR PROFILE

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