IOT AND MACHINE LEARNING FOR IRRIGATION MANAGEMENT IN FLORIDA

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To fully tap into the possibilities of efficient commercial scale irrigation management in Florida, the integration of sensors, data, and Internet of Things (IoT) platforms is essential. These platforms must have the capacity to adapt to the distinct needs of users and the sensors deployed in the field. This adaptation capacity is especially crucial in the context of advancing smart irrigation systems, which rely on IoT technology and sophisticated Machine Learning data processing methods. In this presentation we explore a series of research advancements related to IoT, machine learning, and decision support systems for irrigation management in Florida's specialty crop production. Our focus encompasses current approaches for centralizing data from multiple sensor and data providers, evaluating data quality, real-time adaptation to changes based on human intervention, and fostering technology adoption. By combining IoT and machine learning technologies, we created IrrigMonitor, a centralized decision support system for irrigation management. The centralization of data from multiple providers is pivotal, ensuring that users have access to comprehensive and reliable information for making informed decisions. In an era where data-driven decision-making is rapidly becoming the norm in agriculture, our project underscores the paramount importance of interoperability. This means that different systems, technologies, and sensors can work together harmoniously, allowing users to extract valuable insights from a wealth of data. By enhancing interoperability, we aim to make smart irrigation more accessible and effective for farmers, ultimately contributing to more sustainable and efficient agricultural practices.

PRESENTER BIO: Dr. Sandra M. Guzmán is an assistant professor of smart irrigation and hydrology in the Department of Agricultural and Biological Engineering at the Indian River Research and Education Center in Fort Pierce, FL. Her research program focuses on sustainable agricultural water management, using sensor networks and data analytics to optimize water use efficiency and crop productivity.