

# Crop Suggestive System through Soil Property Characterization using IoT

Mr. Manjunath G<sup>1</sup>, T. Bhavitha<sup>2</sup>, Vaishnavi G<sup>3</sup>, Vinutha T<sup>4</sup>, S. Pavan Kumar<sup>5</sup>

Professors, Department of Electronics and Communication Engineering<sup>1</sup>

UG Students, Department of Electronics and Communication Engineering<sup>2,3,4,5</sup>

Ballari Institute of Technology and Management, Ballari, Karnataka, India

**Abstract:** *The emergence of Internet of Things (IoT) technology has brought about a significant transformation in multiple sectors, including agriculture, by facilitating data-driven decision-making and real-time monitoring. In this work, we present a novel Internet of Things (IoT) agricultural suggestion system that uses soil property characterization to enable accurate crop management and selection. Our technology seeks to help farmers optimize agricultural yields while minimizing resource usage and environmental impact by combining IoT sensors with modern data analytics.*

*Our system's primary feature is the installation of Internet of Things (IoT) sensors throughout fields to continuously collect data on important soil attributes. These characteristics include salinity, pH values, temperature, moisture content, nutrient concentrations, and organic matter content. This data is wirelessly transmitted by the sensors to a cloud platform or centralized database, where it is thoroughly analyzed.*

*One of the many difficulties facing modern agriculture is choosing crops optimally to maximize yields while minimizing environmental effect. Conventional crop selection techniques sometimes rely on manual soil testing or broad suggestions, which produces less than ideal results and inefficiencies. A novel method using the Internet of Things (IoT) is suggested to address this: a Crop Suggestive System using Soil Property Characterization (CSS-SPC). Using Internet of Things sensors, this system continuously monitors and analyzes soil parameters in real-time, giving farmers customized crop recommendations depending on the unique conditions of their property.*

*Crop rotations, soil amendments, and irrigation schedule optimization are made possible for farmers through smooth planning and decision-making that is made possible by integration with current farm management systems. Farmers' ongoing input on the effectiveness of suggested crops guarantees the system's accuracy and continued applicability.*

**Keywords:** Internet of Things