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Vellore Institute of Technology

(Deemed to be University under section 3 of UGC Act, 1956)

School of Computer Science and Engineering

Fall Semester 2024 - 2025

Digital Assignment-1

Technical Answers for Real World Problems (TARP)

Course code: CBS1901

Class number: VL2024250507368

Team members:

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Title:

Smart Irrigation System Using Machine Learning for Rain Prediction and Automated Water Valve Control

Abstract:

This study introduces a smart irrigation system that uses machine learning to estimate water requirements specific to a given piece of land and forecast rainfall, guaranteeing automatic and effective irrigation. The system improves water distribution by applying machine learning models to evaluate real-time environmental data collected by integrating IoT sensors. Reducing water waste and improving crop health, automated water valves will control irrigation based on predicted data. Through careful water control, this approach promotes sustainable agriculture compared to traditional irrigation techniques that distribute water uniformly. To increase water efficiency and climate adaptation, the suggested method is adaptable to a variety of agricultural environments and is scalable.