Internet of Everything – Mini Project (ITL 702)

PROPOSAL

Rain Monitoring Based On IOE

B. E. Information Technology

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Mini Project Proposal

Project Title	**Rain Monitoring Based on IOE**
Need	• Management of water resources and proper usage have become increasingly important in recent years. • Rain sensor senses rain and sends an alert so that we can save water to use for other purposes later. • Even though water is a scarce resource, it is carelessly wasted due to improper handling. • In this context, the real time monitoring of rain and data analysis can prevent misuse of water.
Problem Statement	To build a rain sensing/monitoring smart device which will sense the environment and alert the user about rain and conduct analysis for prediction.
Objectives	1.The primary objective of this project is to introduce an intelligent Rain sensing/ monitoring system in the IoT platform which would help users by alerting them about rain so they can take appropriate actions. 2.To conduct analysis on the data collected by the sensors.
System requirements Sensors, Actuators, IoT Board, Networking module, Cloud, Application software required	1.ESP32 Modules 2.Rain sensor 3.Resistors 4.Buzzer 5.Jumper Wires 6.OS: Windows 7 or above 7.Browser: Chrome/Firefox/Edge/Brave 8.Application: Arduino IDE
Data Analytics Algorithm to be used	Linear Regression is a method that describes the relationship between a dependent variable and a set of independent variables. The equation of the line is given as Y=wx+b. It provides an estimate of rainfall using various atmospheric variables like cloud cover, humidity, wind, and average temperature to predict rainfall.

Performance parameters (Accuracy, Response time, Recall time, Repeatability etc)	Rain sensor should detect rain and the esp module should update the webapp and sound buzzer. Webapp should receive the signal for further applications. Data collected can be used for analysis.
References (Include At least 5 reference papers) (IEEE Format)	1.Development of IoT Based Reporting System. Accessed on: August 7, 2022.[Online]. Available:https://iopscience.iop.org/article/10.1088/1757-899X/917/1/012032/pdf 2.Rainfall Prediction Using Machine Learning Algorithms for the Various Ecological Zones of Ghana. Accessed on: August 7, 2022.[Online]. Available:https://www.researchgate.net/publication/357384484_Rainfall_Prediction_Using_Machine_Learning_Algorithms_for_the_Various_Ecological_Zones_of_Ghana 3. ML-Rainfall prediction using linear regression. Accessed on: August 7, 2022.[Online]. Available:https://www.educative.io/answers/ml-rainfall-prediction-using-linear-regression 4. Integration and management of sensor data for rainfall monitoring. Accessed on: August 11, 2022. [Online]. Available: https://link.springer.com/article/10.1007/s42452-020-2037-4 5. Analyzing trend and forecasting of rainfall changes in India using nonparametrical and machine learning approaches. Accessed on: Aug 11, 2022. [Online]. Available: https://www.nature.com/articles/s41598-020-67228-7.pdf

Signatures of group members **Signature of Mentor**

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