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In Collaboration with

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Growth Monitoring System for Rubber Plant(Hevea Braseliensis)

A Project Proposal by

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Abstract

The rubber industry in Sri Lanka faces challenges in efficiency and quality due to traditional methods of cultivation. These methods require heavy manual monitoring, which is time-consuming and inefficient. The proposed IoT-based rubber plant growth monitoring system aims to provide real-time data and insights to optimize growth conditions for healthier rubber plants and better latex production. The system uses a mixed-method approach, integrating qualitative insights from expert interviews and surveys with quantitative data collected through IoT-enabled sensors. The system architecture supports sensors for monitoring soil moisture, temperature, humidity, and light intensity, which are processed and forwarded to the cloud platform using ESP32 microcontrollers. The development will be based on prototyping methodology, with continuous feedback and iterative refinement. The prototype's initial testing showed promising results, with high precision in measuring growth parameters and an AUC-ROC score for detecting optimal growth conditions. The real-time data provided actionable insights, with automated alerts enabling timely interventions to enhance growth conditions. These results indicate potential for improving yield quality and operational efficiency in rubber cultivation.

Subject Descriptors

- Hardware -> Sensor devices and platforms -> Sensor applications and deployments -> Smart agriculture
- Networks -> Network protocols -> Internet of Things (IoT)

Keywords

Rubber cultivation, IoT, plant growth monitoring, precision agriculture, real-time data analytics