# ABSTRACT

The suitable climate conditions for tea plantations are with a temperature range of 18–25°C, air humidity ≥60%, light intensity ≤52325 lux, and soil humidity ≥30% [3]. If tea plants grow outside of these ideal conditions, the resulting tea will experience a decrease in quality and productivity. The main factor causing this decrease is the lack of favorable climate conditions.The impact of the decline in tea plant productivity can be addressed by planting protective trees that serve to shield the tea plants from excessive heat, providing additional nutrients to the soil, and preventing soil drought. Accurate data reading and processing equipment are needed to obtain suitable recommendations, allowing tea plantation farmers to determine whether planting protective trees is necessary or not. This is expected to aid the performance of tea plantation farmers. The testing conducted includes decision-making tree testing, tool compactness testing, monitoring tests of the 4 parameters, and direct data storage testing in the storage memory. The results of these measurement tools show that all components and subsystems function well. The tool can provide information on the need for protective trees with an average predictive accuracy of 99.46%, and its dimensions are compact enough to facilitate the farmers' performance and mobility, with a size of 15cm x 10cm x 3.5cm. The system can monitor the 4 parameters effectively, and the tool can directly store monitoring data in the storage memory with a data size ranging from 32KB for each file.

**Keywords: Ideal Climate Conditions, Information about Protective Trees, Monitoring of Test Parameters, Compactness of the Tool, Direct Data Storage**