

I. INTRODUCTION

A green house is a controlled environment for growing plants. Nelson defines a greenhouse as a building for plant cultivation, which has a translucent roof and wall structure.

The development of green houses or greenhouses for horticulture is very important because it guarantees the success of growing which is influenced by the environment such as temperature, humidity, and light intensity.

According to Koesmaryono et al. [1], climate has an important influence on the functional conditions of the greenhouse in creating optimal conditions for plant cultivation.

Orchid plants require a fairly special scope so that orchid plants can develop optimally, with a scope that is suitable for orchid plants to provide plants to grow normally. Lembang green house has a very supportive land for orchid cultivation because orchid plants will be difficult to develop optimally if not cultivated on land that has good soil posture.

The implementation of monitoring and predicting Humidity, Temperature, and Light in greenhouse is really good for using Gaussian Process Regression (GPR) model can make predictions prior knowledge (kernels) and provide measures over predictions. The Gaussian process regression model in the field of forecasting and prediction in almost all scientific studies has better prediction accuracy than statistical and mathematical models, not only that the Gaussian process regression method has flexibility in design and use.

The author uses a dht 22 sensor to read the humidity temperature, then the ldr (light dependent resistor) sensor uses an LM35 to read the light in the room. Humidity, temperature, and light have a very important role in plant growth in the green house. Light is very influential on temperature and humidity. If the sun produces more light, it can increase the temperature and decrease the humidity of the air, causing damage to plants. So it can be concluded, the intensity of temperature, humidity, and light in the green house room must always be monitored or controlled.

According to Xiuyong Shi, Degang Jiang, Weiwei Qian, and Yunfang Liang et al. [2] The prediction results show that, compared with GPR with the square exponential kernel function, the GPR model with the rational quadratic kernel function could achieve a higher R^2 value ($R^2 = 0.99$) and lower RMSE value (7.9321), MSE value (62.919) and MAE value (3.2494). However, the GPR with the combined kernel function has a R^2 value of 1.00, the RMSE value is reduced to 3.262, and the MSE value and MAE value of the combined kernel function are also lowered.