

## INTISARI

*Insulator string* yang dioperasikan di area berpolusi tinggi mengharuskan dilakukannya penanganan secara khusus agar fungsi *insulator string* tidak mengalami kegagalan yang mengganggu operasi sistem. Untuk menjamin keandalan fungsi *insulator string*, PT. PLN (Persero) melakukan kegiatan *preventive maintenance* (PM) berupa pembersihan *insulator string* berdasarkan diagnosis keberadaan emisi ultraviolet yang dideteksi menggunakan kamera ultraviolet dalam bentuk nilai *count*. Kelemahan metode evaluasi kondisi *insulator string* saat ini yaitu validitas parameter UV *Count* bergantung pada teknik perekaman oleh operator dan proses validasi dilakukan secara manual pada jumlah data yang relatif banyak.

Tujuan penelitian ini yaitu menyediakan data tingkat kondisi *insulator string* berdasarkan tingkat kondisi *insulator string* yang telah disusun oleh Tim Capstone. Data tersebut diperoleh dari hasil analisis kualitatif video perekaman *insulator string* di PLTU Adipala menggunakan kamera ultraviolet yang direkam oleh Tim Engineer PT. Indonesia Power.

Hasil analisis kualitatif tersebut digabungkan dengan hasil analisis kuantitatif untuk mendapatkan nilai korelasi yang akan menjadi dasar penentuan algoritma yang digunakan oleh aplikasi untuk menentukan tingkat kondisi *insulator string* oleh aplikasi. Proses analisis kualitatif dimulai dari menyortir video, mendata parameter yang diperlukan, dan menganalisis video secara kualitatif berdasarkan bentuk dan karakteristik emisi ultraviolet. Terdapat 51 video rekaman dari sembilan jenis *insulator string* yang diamati. Dari 51 video tersebut, terdapat dua video yang menampilkan kondisi *insulator string* tingkat satu, 22 video kondisi *insulator string* tingkat dua dan 27 video kondisi *insulator string* tingkat tiga.

**Kata Kunci:** aplikasi, *contamination flashover*, *insulator string*, *preventive maintenance*, ultraviolet

## ABSTRACT

*Insulator strings that are operated at a high polluted area require particular handling in order for the insulator strings so as not to fail, in which failure could lead to interference of the operation system. To guarantee its reliability, PT. PLN (Persero) carries out preventive maintenance by cleaning the string insulator by diagnosing the presence of ultraviolet emission that is detected by an ultraviolet camera in a count value form. The debilitation of the current method of evaluating the condition of the insulator string is that the validity of the UV Count parameter depends on the recording technique by the operator and the validation process is done manually on a relatively large amount of data.*

*The purpose of this research is to provide the data of the string insulator condition level based on the string insulator condition level that has been compiled by the Capstone team. The data used in research was obtained from qualitative analysis of the video recording of the string insulator at PLTU Adipala by using an ultraviolet camera which was recorded by the engineering team at PT. Indonesian Power.*

*The results of the qualitative analysis are combined with the results of quantitative analysis to obtain a correlation value which will be the basis for determining the algorithm used by the application to determine the level of the string insulator condition by the application. The qualitative analysis process started from sorting the video, collecting the required parameters, and analyzing the video qualitatively based on the form and characteristics of the ultraviolet emission. There are fifty one video recordings of the nine types of string insulators that were observed. Out of the fifty one videos, there are two videos showing the condition of the first level string insulator, twenty-two videos of the condition of the second level string insulator and twenty-seven videos of the condition of the third level string insulator.*

**Keywords:** *application, contamination flashover, insulator string, preventive maintenance, ultraviolet*