

ABSTRAK

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**PERANCANGAN ALAT PEMANTAUAN SUHU TRANSFORMATOR
DAYA MENGGUNAKAN NODEMCU BERBASIS IOT**
Skripsi, Fakultas Sains dan Teknologi (2022).

(xvi + 51 halaman, 40 gambar, 11 tabel, 4 lampiran)

Transformator daya merupakan perangkat penting dalam sistem distribusi daya listrik, khususnya untuk distribusi daya listrik di PT. GTX. Operasional transformator yang gagal dapat menyebabkan berhentinya proses manufaktur karena terputusnya pasokan daya listrik, oleh karena itu pemantauan dan pengendalian kondisi transformator harus dilakukan secara optimal. Pemantauan transformator yang optimal dapat dicapai dengan sistem pemantauan yang berkelanjutan dan real time. Sistem pemantauan kondisi suhu transformator yang diterapkan di PT GTX masih dilakukan secara konvensional, setiap satu jam operator melakukan cek visual untuk memantau kondisi temperatur transformator. Sistem peringatan saat suhu transformator mendekati batas maksimal yang ditentukan juga belum diterapkan. Berdasarkan keadaan tersebut maka dibutuhkan alat yang dapat memantau suhu transformator yang lebih efektif dan terpusat, maka dibuatlah perancangan alat pemantauan suhu transformator menggunakan NodeMCU sebagai *processor*-nya, sensor suhu menggunakan *thermocouple* tipe K yang diintegrasikan dengan *online database* sehingga terbentuk aplikasi *Internet of Thing*, data akan ditampilkan pada aplikasi *Blynk*. *Smartphone android* akan berfungsi sebagai media pemantauan yang digunakan, di mana pada media tersebut dapat dilakukan pengaturan parameter suhu dan dapat mengakses database secara faktual. Data akan dianalisis menggunakan metode regresi linear agar dapat diketahui nilai *error* yang akan terjadi pada parameter pengukuran suhu.

Kata Kunci : Transformator daya *NodeMCU*, suhu, *Internet of Things*, *Blynk*.

Referensi : 7 (2007-2019)

ABSTRACT

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POWER TRANSFORMER TEMPERATURE MONITORING SYSTEM DESIGN USING NODEMCU BASED ON IOT

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(xvi + 51 pages; 40 pictures; 11 tables; 4 appendices)

The power transformer is the main device that has an important role in the electrical power distribution system, especially for the distribution of electrical power at PT. GTX. The failed of operating transformator can cause the manufacturing process to stop due to a power cut, therefore monitoring and controlling the condition of the transformer must be carried out optimally to prevent problems that will cause the transformer to fail operating. The good transformer monitoring and control can be achieved with a continuous and real time monitoring system. The transformer temperature condition monitoring system is implemented by the Department of Power House, PT GTX. still done conventionally, every hour the operator checks visually to monitor the temperature conditions of the transformer directly at the transformer location and records on the report paper the temperature value shown by the measuring instrument installed on each transformer unit. At this time, PT GTX has not implemented a warning system when the transformer temperature approaches the maximum limit. Based on those condition, some tools that can monitor the temperature conditions of the transformer more effectively and centrally is needed, therefore the design of a transformer temperature monitoring tool is developed by author, using NodeMCU as the processor, type K thermocouple used as temperature sensor which the functions as an input then integrated with an online database so an internet of things application is made. The monitoring data will be displayed on the Blynk application. Android smartphone will function as a monitoring medium used, where on its temperature parameter settings can be done and can access the database factually. The data will be analyzed using the linear regression method in order to know the error value that will occur in the temperature measurement parameters.

Keywords : ~~Blynk~~ Transformer, NodeMCU, Temperature, Internet of Things,

Reference : 7 (2007-2019)