

## **Uji Baud Rate dan Daya Pancar Sistem Telemetri Temperatur Berbasis Mikrokontroler**

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### **ABSTRAK**

Perancangan sistem telemetri temperatur berbasis mikrokontroler telah dilakukan. Penelitian tentang sistem telemetri temperatur dilakukan untuk menguji *baud rate* dan daya pancar sistem telemetri temperatur berbasis mikrokontroler. Pengujian tersebut dilakukan untuk menganalisis gangguan transmisi data pada sistem telemetri temperatur. Alat yang digunakan untuk penelitian tersebut adalah sensor temperatur LM35DZ, perangkat *transmitter*, perangkat *receiver* dan PC. Pada penelitian sistem telemetri temperatur dilakukan tiga pengujian di antaranya pengujian sensitivitas sensor temperatur LM35DZ, pengujian *baud rate* dan pengujian daya pancar. Pengujian sensitivitas sensor temperatur LM35DZ dilakukan dengan cara melihat perubahan tegangan *output* sensor terhadap perubahan temperatur sehingga diperoleh grafik  $T(V_{out})$  yang mempresentasikan besarnya sensitivitas sensor temperatur LM35DZ. Pengujian *baud rate* dilakukan dengan cara memvariasikan *baud rate* pada perangkat *receiver*. Pengujian daya pancar dilakukan dengan cara memvariasikan jarak antara *transmitter* terhadap *receiver* dan mengukur tegangan *output* perangkat *receiver* pada setiap 1 m. Variasi jarak yang digunakan adalah 0 m sampai dengan 13 m. Hasil pengujian *baud rate* diperoleh sinkronisasi data yang baik pada saat *baud rate receiver* sama dan lebih besar dari *baud rate transmitter*. Sedangkan hasil pengujian daya pancar diperoleh penurunan daya pancar seiring bertambahnya jarak dan menyebabkan keterlambatan transmisi data.

**Kata Kunci :** sistem telemetri, *baud rate*, daya pancar.

## **TEST THE BAUD RATE AND THE TRANSMIT POWER OF MICROCONTROLLER-BASED TEMPERATURE TELEMETRY SYSTEM**

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### ***ABSTRACT***

The design of microcontroller-based temperature telemetry system has been done. Research on temperature telemetry system was conducted to test the *baud rate* and the transmit power of microcontroller-based temperature telemetry system. The tests were conducted to analyze the disruption of data transmission on the temperature telemetry system. The tools used for the study are LM35DZ temperature sensor, transmitter devices, receiver devices, and PC. At the research of temperature telemetry system three tests were conducted, namely LM35DZ temperature sensor sensitivity testing, *baud rate* testing, and transmit power testing. Sensitivity testing of LM35DZ temperature sensor was done by looking at changes in output voltage of the sensor to changes in temperature in order to obtain a graph of  $T(V_{out})$  that represents the magnitude of the sensitivity of LM35DZ temperature sensor. *Baud rate* testing was performed by varying baud rate on the receiver device. Transmit power testing was done by varying the distance between the transmitter to the receiver and measuring the output voltage of receiver devices at every 1 m. Distance variation used is 0 m up to 13 m. Baud rate testing results obtained good data synchronization at the same receiver baud rate and greater than baud rate transmitter. While the test result of transmit power obtained decrease of transmit power along with increasing distance and cause data transmission delay.

**Keywords:** telemetry system, baud rate, transmit power.