

RANCANG BANGUN ALAT PEMANTAU LOKASI KENDARAAN BERBASIS GPS

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ABSTRAK

Angka pencurian kendaraan di Kota Bekasi masih tinggi, dengan hanya 22,7% kasus yang berhasil dituntaskan. Penelitian ini merancang sistem pelacak kendaraan berbasis GPS, GSM, Relay, dan Arduino Nano untuk mempermudah pelacakan. Pengujian dilakukan dengan mengukur waktu penguncian sinyal GPS serta waktu penerimaan dan pengiriman pesan posisi kendaraan. Sistem berhasil dibangun dan mampu mematikan mesin serta menghasilkan suara untuk memudahkan pencarian. GPS mencatat rata-rata waktu penguncian 196 detik pada siang hari dan 72 detik pada malam hari dengan ketepatan 95,33%. Pengiriman pesan memiliki rata-rata tunda 13,82 detik (beda operator) dan 11,60 detik (sesama operator) dengan ketepatan 70,73%.

Kata Kunci: Arduino Nano, Gelombang Radio, GPS, GSM, Ionosfir, Pelacak Kendaraan, Titik Lokasi

DESIGN AND CONSTRUCTION OF A GPS-BASED VEHICLE LOCATION MONITORING DEVICE

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ABSTRACT

The number of vehicle thefts in Bekasi City remains high, with only 22.7% of cases successfully resolved. This study designs a vehicle tracking system based on GPS, GSM, Relay, and Arduino Nano to facilitate tracking. Testing was conducted by measuring the GPS signal locking time as well as the time for receiving and sending vehicle position messages. The system was successfully built and is capable of shutting down the engine and generating a sound to facilitate search efforts. GPS recorded an average locking time of 196 seconds during the day and 72 seconds at night with an accuracy of 95.33%. Message delivery had an average delay of 13.82 seconds (different operators) and 11.60 seconds (same operator) with an accuracy of 70.73%.

Keywords: Arduino Nano, Radio Waves, GPS, GSM, Ionosphere, Vehicle Tracker, Location Point