

INTISARI

PURWARUPA PENGENDALIAN JARAK JAUH PADA *MOBILE* ROBOT BERBASIS *WEB* MELALUI JARINGAN *WIRELESS* TCP/IP

oleh

Fajar Rinto Hadi Putra
10/310911/PA/13534

Telah berhasil dirancang sebuah purwarupa *mobile* robot yang dapat dikendalikan dari jarak jauh, dengan berbasis *web* melalui jaringan TCP/IP. Purwarupa *mobile* robot menggunakan sistem gerak menyerupai tank, yang dilengkapi sebuah kamera untuk keperluan *surveillance* untuk mendapatkan data pantauan lingkungan secara *real time* di sekitar *mobile* robot ini, pengguna menggunakan *webcam*. Karena purwarupa *mobile* robot ini dapat dikendalikan dari jarak jauh menggunakan aplikasi berbasis *web* dari komputer *host* melalui media jaringan *wireless* TCP/IP, ditujukan untuk keperluan penginderaan jarak jauh di lingkungan yang berbahaya bagi keselamatan manusia. Komunikasi yang dilakukan menggunakan sebuah perangkat *wireless* untuk dua arah mengirim dan menerima data. Pada tahap *debugging*, komunikasi *wireless* dilakukan tanpa penghalang (*line of sight*), antara komputer *host* dengan purwarupa *mobile* robot tersebut. Berdasarkan pengujian jarak optimal kendali robot ialah 7,2 meter, semakin jauh dari sumber kendali waktu tanggap robot relatif semakin lama. Kualitas streaming video yang dikirimkan ke user hingga 1024x720 *pixel* pada 30 *frame per second*.

Kata kunci: *mobile* robot, komunikasi *wireless*, TCP/IP

ABSTRACT

PROTOTYPE OF REMOTE CONTROL MOBILE ROBOT BASED ON WEB THROUGH WIRELESS TCP/IP NETWORK

by

Fajar Rinto Hadi Putra
10/310911/PA/13534

It has been successfully developed a prototype mobile robot which could be controlled remotely, based on web through wireless TCP/IP network. This prototype mobile robot adopts tank's movement, also it has a camera for surveillance purpose to acquire real time data on surrounding environment, a webcam is used by user. Since it is controlled remotely from an web based application on host computer via wireless TCP/IP network, it could do some telemetry in such environment, which harmful for human. It uses a wireless device for birectional communication, to transmit and receive data. While on debugging, wireless communication are took place directly without any obstacle (line of sight), between host computer and prototype mobile robot. Based on tests before, it could be controlled within 7,2 metres. Further its moved from its host, it took more time to response. Also it had capability to send streaming video data to its host with 1024x720 pixels in resolution at 30 fps.

Keywords: mobile robot, wireless communication, TCP/IP