

## ABSTRAK

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Judul : Implementasi Algoritma Pengiriman dan Penerimaan Gambar Melalui Sambungan Satelit untuk Pemantauan Tsunami Buoy Merah-Putih

Pemerintah Indonesia membangun suatu sistem peringatan dini Tsunami (early warning system) gempa dan tsunami yang disebut Indonesia Tsunami Early Warning System (Ina-TEWS). Namun Buoy yang sudah terpasang sejak tahun 2008 sudah tidak berfungsi karena rusak, hilang atau vandalisme. Oleh karena itu, dibutuhkan sebuah kamera pemantauan pada badan Buoy dan mengirimkan gambar melalui sambungan satelit yang memiliki lebar pita terbatas. Metode dalam pengiriman gambar menggunakan compression image, slicing image dan encode image menggunakan base64. Gambar yang dihasilkan memiliki ukuran 4.6 KiloByte yang di parsing menjadi 36 part gambar, sehingga tiap part memiliki ukuran 232 bytes. Pengiriman dan penerimaan gambar berhasil dilakukan tanpa adanya pixel gambar yang rusak ataupun tertukar saat dilakukan encode decode data gambar. Algoritma yang dibangun mampu melakukan pengiriman dan penerimaan gambar secara otomatis tanpa adanya data yang rusak saat pengiriman dan gambar diterima dengan keadaan baik sesuai gambar yang dikirim. Slicing pada pengiriman dan merge pada penerimaan tidak terjadinya perubahan pixel, perubahan gambar dan perubahan posisi slicing saat dilakukan merge pada penerimaan gambar.

Kata kunci:

*inatews, buoy, tsunami, permasalahan vandalisme, satelit, bandwidth, kamera, pengolahan citra*

## ABSTRACT

Name : Faizurrahman 'Allam Majid  
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Title : *Implementation of the Algorithm for Sending and Receiving Images Through Satellite Connections for Monitoring the Red-White Buoy Tsunami*

The Indonesian government has developed an earthquake and tsunami early warning system called the Indonesia Tsunami Early Warning System (Ina-TEWS). However, the Buoy that has been installed since 2008 is no longer functioning due to damage, loss or vandalism. Therefore, a monitoring camera is needed on the body of the Buoy and transmits images via a satellite connection which has a limited bandwidth. Methods in sending images using image compression, image slicing and image encode using base64. The resulting image has a size of 4.6 KiloBytes which is parsed into 36 image parts, so that each part has a size of 232 bytes. Image sending and receiving was successfully carried out without any damaged or swapped image pixels when encoded image data was encoded. The algorithm that is built is able to send and receive images automatically without any data being damaged during transmission and images are received in good condition according to the images sent. Slicing on sending and merging on receiving does not occur in pixel changes, image changes and changes in slicing position when merged on receiving images.

Key words:

*inatews, buoy, tsunami, vandalism, satellite, bandwidth, camera, image processing*

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