IMPLEMENTATION OF IMAGE REGISTRATION FOR ROAD CONDITIONS BY USING GLOBAL POSITIONING SYSTEM (GPS)

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ABSTRACT

Image registration is a process to combine two different scale and resolutions of images. After the registration process, the two images can be compressed with high precision. Implementation of Image Registration for highway condition is built for ease in knowing highway conditions. Due to related institution in improving road conditions require a longer time and quite a lot heavy equipment. Thus, the focus in this final project is to design a system that can be used in reviewing the physical condition of the highway by camera placed in front of a vehicle that scanning highway to do image processing, as well as a GPS that will show any position in any location through by it, where the results of the image processing will be processed into image registration in order to obtain a new image form so that users can know in detail the condition of the highway at any point. The measurement system to get results whether the system has been running well ie using comparative measurements manually by measuring the distance between two points of the GPS coordinates. The results of calculations with three different road conditions, among others: the condition of the road with many cracks, road conditions little cracks, and road with wet conditions. The highest average error is obtained on wet road conditions by 40.44%. So that the system can not work optimally on a wet road conditions as well as the system can work optimally at a rate of speed 10-20km/jam with an average error rate of 33-38%. The system is expected to be developed in terms of the quality of the hardware used.

Keywords: Road conditions, Global Positioning System, Image Processing, scanning, vehicle