

ABSTRACT

Security parking system is very necessary. Like the existing parking lot at the Institut Teknologi Telkom and Politeknik Telkom, in which the parking system that is used only rely on just a parking card, regardless of the identity of vehicles that were taken out.

In this thesis, the verification system is designed vehicle numbers listed in the database on each - each holder of user tags with the number of vehicles that captured by webcam. Used by the two webcam on research, the first webcam to recognize the color on the color code matrix, in this process is used detection method based on evaluation of the color components of YCbCr color code matrix. Then made the background color sensor and sensor placement so that precise positioning matrix color code so that it can be read with a color sensor correctly. Each sensor will sampling colors to identify each component YCbCr color. Second webcam capture of the holder of the vehicle user tags, and capture the results will be processed to obtain the position plate vehicle numbers and then identified each character. The process of finding position of vehicle number plates using a labeling system, the counting area of each label, convolution and the label widely remove a more than predetermined threshold based on the area of vehicle number plates. While for character recognition using K-Nearest neighbor (KNN).

System reliability, obtained by conducting outdoor trials in the three scenarios, among others: the search pilot license plates of vehicles on the condition of the morning, afternoon, and evening. In the process of cropping, resulting level of accuracy of 96.67% for motorcycles and for cars acquired 100% accuracy. Furthermore, the introduction of characters, obtained 67.46% accuracy for for motorcycles with a time of 9.02 seconds and required 84.76% for cars with a time of 9.85 seconds.

Key words: *color matrix code, parking system, database, K-Nearest neighbor, license plate motor vehicles.*