

Abstract

Handwritten digit recognition is considered to be the most interesting and challenging subject in digital image processing. [1] [2]. Because every person have different handwritings. Even there is a slight different between each character in one single writing.. This subject of digital image processing can help our task, such as Presidential Election of Indonesia. Unfortunately, we need a very accurate recognition system that can handle handwritten digit, because it involved all of people's right. So there must no single mistake that can happen by incorrectly recognize the voting results.

Many research done by Fahim, et.al [1], Babu, et.al [3], Kartar, et.al [4], Many research done by Fahim,et.al, Babu,et.al, Kartar,et.al. And they still can't achieve 100% accuracy. So, this subject is still relevant to be researched to achieve 100% accuracy. There are many method to recognize handwriting character [1] [3] [5] [2] [4]. This research is focused on Feature Extraction method called Zone Density & 8-Background Directional Features, where each character will be divided into certain zones and feature extracted using wind direction with mask defined. This method is used because it is explorable. This method is new [1] [4], nd many aspects can be researched in order to achieve maximum accuracy. KNN will be used as classifier, because of its low complexity [1], its ability to handle large dataset and many classes..

This research achieve maximum accuracy of 93.25% from 10.000 test data from CI form of Presidential Election of Indonesia in 2014. The best parameter used to achieve 93.25% accuracy is number of zones a total of 49 zones, k value of 6, and a total of 4 direction used on 8-Background Directional Feature method, such as NorthWest, NorthEast, SouthWest, and South East.

Keywords : *Pengenalan angka, Zone Density Computation, 8-Background Directional Features, K-Nearest Neighbor*