CHAPTER 1
INTRODUCTION

1.1 Background

My research problem is how to detect jaundice disease with image processing, Jaundice is a condition in which the skin, sclera (whites of the eyes) and mucous membranes turn yellow because of high bilirubin.why did I choose this problem, because this issue is important if jaundice is not detected quickly it will cause kernicterus and can also cause death, especially in Indonesia medical equipment is very limited and hospital costs are expensive to detect this disease. Many people in the middle to lower classes also consider that yellow disease is a minor/trivial disease, according to alodokter.com, although people with this disease can heal by itself, but if it is not detected immediately, it will be very risky because jaundice is a sign of a other dangerous disease in the body who suffer

Many studies and journals have tried to solve the problem of detecting jaundice through telehealth, example, like a journal from D. Anggraini about "Contribution of information technology (IT) system in overcoming neonatal jaundice: a systematic literature review". 2010 In her Journal, he gives the view that information technology can find solutions in detecting neonatal jaundice disease, he also gave methods for extracting data such as analysis, design, implementation, testing and evaluation,or study from Mansor, M. N. ,Yaacob, S , Hariharan, M. , Basah, S. N. , Ahmad Jamil, S. H. F. S. , Mohd Khidir, M. L. , Rejab, M. N., Ku Ibrahim, K. M. Y, Ahmad Jamil, A. H. F. S. , Junoh, A.K , Saad, S.A about "Jaundice in Newborn Monitoring using Color Detection", in their journal, discusses various methods of detecting colors that can actually detect or monitoring this jaundice disease. My proposed approach to solve this problem, as this disease is characterized by discoloration of the eyes and skin, i will use it as a sample to detect jaundice is by using color detection algorithm, by using kernel method as first step we obtain the image, then we try to set mask of the image to

find right range for yellow jaundice color, next we scaling the image ,third we convert the color of image from RGB to HSV, and then set a range yellow jaundice color, after that image will be process into convolution kernel, after that we detect skin and find yellow jaundice in color skin, after that the image going to convolution kernel then if we detect yellow jaundice on the skin in our image then the program will draw line contour in that skin area, and last step image being compressed and shows the result

1.2 Problem Formulation

1. how accurate color detection method to detect jaundice disease?
2. Is the classification method applied capable of distinguishing between Asian skin and jaundice?
3. Does the image quality affects the detection results?

1.3 Scope

1. Implementation HSV as Color Space to gain 3 value for color detection as (Hue, Saturation, and Value)
2. Analyze various classification method in color detection to gain better result with comparing color logistic regression and kernel method
3. Does the the kernel method work well in detecting jaundice?

1.4 Objective

The objective of this project is to detect jaundice as early as possible in order to prevent kernicterus and death, and reduce patient costs. Also this project can help small hospitals or health center in their inadequate equipment