CHAPTER 5

CONCLUSION

5.1   Summary

The project 'Shape Recognition Using Image Processing' totally had acquired and it is the program that important to form a good database. The method that been used is the entire basic program from reading the image to acquiring the database from a binary image that already converted to an edge image. This image then is analyzing using Singular Value Decomposition to extract the identity of that particular image and finally the step of how the neural network forming recognition. Recognition is highly complex activity that can be done only in human brains. But in the name of Artificial Intelligence, thus the systems trained to recognize what the systems supposed to know and figure out.

5.2   Recommendation for future project

5.2.1   Good Studio

To acquire good images for this project, the projects itself need to set up a studio that has the perfect environment so that the outcome of the image is only the details that

needed. From the experiment, it is important to avoid all the imbalance lighting, shadow and the bright reflection. This is because there is no filtering if the image got lots of reflection during conversion. The reflection will be there all the time until edge detection processing and this will influence the result of the data processing.

5.2.2   Device Setup

Another problem is need to overcome is the device. Make sure that the cameras are passive vision. This means that the camera separated by a distance known as base length in the same plane. Many applications require knowledge of the three-dimensional world, for example robotic assembly, robot navigation etc. Humans are able to infer a great deal of depth information directly from two-dimensional photographs. Machine inference of these properties has proved difficult.

Therefore, it is important that the camera as the machine to be fixed to the exact baseline and length and also the focus lens of the camera need to be fixed. Do not exposed the camera lens to the bright sunlight as it will damage the camera hence will effect the system program.

5.2.3   Digital instead of Web camera

To make the real time equipment, it supposed to use digital camera with a good focus lens. This is from the experience; the web camera is only use indoor. It cannot be exposed to bright sunlight or it will only show white image instead of the obstacle. Digital camera has a good lighting when snapping a picture, so it is good to avoid the blurry image. Database is as important as it is the brain to all the pictures it acquired to be compared with newly image capture by the digital camera.

5.3   Commercialization Potential

It is recommended that if this equipment is needed to be industrialized and need to have a good selection for the entire item. The design of the item need to be calculating sharply and analyze details each of the failure came.

It is better if all the images from all types of models are obtain and for the SVD values, the more in the input database will be better. It is better if all the value is use in the database instead of only several values. The image resizing also can be ignored as the purpose is only to limit the SVD value. If a program invented with no limitation for the image resolution, which means that the original image is the processed image, this system will be so good with an exact database.

5.4   Project Management

The successfulness of this project is from the learning process from time to time starts from image acquisition to data processing. The enhancement that get is from learning several methods and some example such as the Hough transform, various edge detection and image filtering is then applied in this project. However, this project is based on wholly using the MATLAB program. There are other types of program that can be use such as Visual Basic or even C++ programming. MATLAB program can detect various type of processing unit and image processing is one of the specialties. However, this software needs a good computer which has high specification so that the processing for the image is efficient.

5.5 Overall

The database programming is a successful as the program is good enough to detect a model shape by applying the output database. The input database which used the Microsoft Excel is all numerical values which only display 33 values from the SVD. This is about ¾ of the images are identified instead of only a small particular pixel detected.