CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

Storage system has grown to the point where failures are common place and must be tolerated to prevent data loss. All current storage systems that are composed of multiple components employ erasure codes to handle disk failure. Storage systems are inevitable for modern day computing. All known computing platforms ranging from handheld devices to large super computers use storage systems for storing data temporarily or permanently. Beginning from punch card which stores a few bytes of data, storage systems have reached to multi Terabytes of capacities in comparatively less space and power consumption (Plank et al., 2012). Storage when refers to computers meaning that a device capable of storing data. In a computer, storage is the place where data is held in an electromagnetic or optical form for access by a computer processor. Computer data storage also known as storage or memory refer to computer components, devices and recording media that retain digital data used for computing for some interval of time (He et al., 2002).

The first data storage device was introduced by International Business Machines (IBM) in 1956. Since then there has been remarkable progress and has provided the fertile ground on which the entire industry of storage systems has been built. Storage systems are built by taking the raw storage capability of a storage device and by adding layers of hardware and software in order to obtain a system that is highly reliable, has high performance and easily manageable. Storage systems are sometimes referred to as storage subsystems or storage devices (Plank et al., 2012). Storage systems have evolved to support a variety of added services, as well as connectivity and interface
alternatives. It is for this reason that file systems and storage management systems are often considered parts of a storage system (Morris et al., 2003).

Since storage assignment has a direct impact on order picking efficiency, it has received much interest in the research of distribution warehouse operation, seaport container yard operation and automated storage and retrieval (AS/R) systems (Chou et al., 2011). A main advantage of the dedicated storage policy is that order pickers can learn the inventory locations quicker. In applying the dedicated storage policy, inventory items are ranked by certain indices and then assigned to the storage slots sequentially according to the rank (Chou et al., 2011).

Starting from the establishment of the Faculty of Manufacturing Engineering (FKP) on 2008 until now, there is no store keeper was been hired. Other than that, users faced with some other problem regarding the store at FKP such as lack of tool information, difficult to find the tool, take a long time to find the location of tool, the quantity of the tool needed is not enough and tool misplace. Storekeeper is responsible in storing, releasing, compiles records, monitoring and controlling tools. By implement this tool storage system in FKP, inventories will be placed in the safety, appropriate, conspicuous and neatly. Other than that, by implementing tool storage system at the FKP workshop, it can be reduce to hiring store keeper. FKP also can get lot of advantages by implementing storage management system such as easy to find the location, specification and details information of the tool. Due to the tool arrangement it can be in a systematic, proper, innovative and appropriate condition.

1.2 PROBLEM STATEMENT

This is concerned with the problem of the development tool storage system. The items are used in a given process, which incurs a cost whenever the required item is not immediately available or in bad condition (Matzliach., 1998).

The different problem in which the request for the same stock items is stochastically recurrent. Examples of such items include tooling in factory, books in library and digital objects in data warehouse or store (Chou et al., 2011).
In Faculty of Manufacturing Engineering (FKP) store, there is no other proper system to keep those tools storage especially tooling in a systematic and economic method. The tools that have in the store like end mill, ball nose, taping with various types of diameter, reamer, phase mill, turning tool, boring tool, tape holder, vanier caliper, micrometer, air gun and many more. Users just take the tool needed and not return back to the original location. Hence, it will give difficulty to the next user to find the tool. Therefore, if it still no other proper system has been created to overcome this problem, FKP will faced with a bad impact in storage management system especially on tooling which are store will unorganized, full with necessaries and unnecessary tools, waste of time and money uses to buy or order from suppliers. The FKP will face huge losses because of those bad impacts and missing tools.

This study is made to develop a system to keep all the tool storage in order, more systematic, more appropriate storage, easy to find the storage and able to control the storage via system. In addition, this research can be improve a lot from the storage flow in FKP due to the management and education aspect and also it become more efficient in storage management. According to the FKP administrator, no one are interested to manage the FKP storage because there are no specific journals on this research, only limited study can be found and no specific software provided. This information can be very useful to people whose intend to do improvement at their place. With applying this method in FKP, it will solve those problems that occur

1.3 OBJECTIVES

The main objectives of this research are:

i. To develop and analysis the hardware of tool storage system.

ii. To compare the results before and after applying this tool storage system.