



UNIVERSITI TEKNIKAL MALAYSIA MELAKA

**ANALYSE, DEVELOP AND FABRICATE NEW TACTICAL
KNIFE FOR MILITARY USING LONG FORGOTTEN KERIS
TECHNOLOGY**

This report submitted in accordance with requirement of the Universiti Teknikal
Malaysia Melaka (UTeM) for the Bachelor Degree In Mechanical Technology
(Automotive Technology) With Honours

by

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2015

DECLARATION

I hereby, declared this report entitled “Analyse, development and fabricate new tactical knife for military using long forgotten keris technology” is the results of my own research except as cited in references.

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APPROVAL

This report is submitted to the Faculty of Engineering Technology of UTeM as a partial fulfillment of the requirements for the degree of Bachelor of Mechanical Engineering Technology (Automotive). The member of the supervisory is as follow:

.....

(Project Supervisor)

ABSTRAK

Tujuan kajian ini adalah untuk menganalisis, membangun dan memalsukan pisau taktikal baru untuk tentera menggunakan teknologi Keris lama dilupakan. Pisau taktikal adalah pisau dengan satu atau lebih tentera (mempertahankan diri) ciri-ciri yang direka untuk digunakan dalam keadaan yang melampau. Dalam penggunaan yang popular istilah "pisau pertempuran" dan "pisau taktikal" sering digunakan silih berganti, walaupun pada hakikatnya pisau taktikal terutamanya direka untuk digunakan sebagai alat utiliti, bukan sebagai senjata. Keris adalah yang tersendiri, keris simetri endemik kepada Malaysia dan Indonesia. Kedua-dua senjata dan objek rohani, keris sering dianggap mempunyai intipati atau kehadiran, dengan beberapa bilah yang mempunyai nasib yang baik, manakala yang lain mempunyai buruk. Fungsi awal keris adalah sebagai senjata untuk mempertahankan diri sendiri, untuk mengekalkan kehidupan seseorang, dan berfungsi sebagai pelbagai senjata dekat. Sebelum pembangunan budaya dan seni, bentuk keris berubah mengikut keperluan dan sumbangannya kepada kehidupan manusia, antara lain ia boleh menunjukkan status sosial pemilik Keris. Keris juga berfungsi sebagai simbol kuasa. Bilah diperbuat daripada bijih besi yang berbeza dan sering mengandungi nikel. Biasanya, keris dihasilkan menggunakan proses menjalin. Untuk kajian ini, pemilihan reka bentuk pisau taktikal akan dibuat berdasarkan kajian daripada kajian literatur. Reka bentuk produk telah disediakan dengan menggunakan perisian Catia. Kemudian, lukisan itu dipindahkan ke Catia softwares untuk analisis. Kemudian, lukisan itu dipindahkan ke mesin CNC dan proses pembuatan bermula. Sebelum membina reka bentuk, semua reka bentuk yang terpilih akan membandingkan berdasarkan kriteria. Sebagai reka bentuk yang dihasilkan, ia akan

digunakan untuk menghasilkan pisau taktikal menggunakan peralatan yang disediakan di makmal FTK ini. Kemudian, kesimpulan keseluruhan projek dibuat untuk mengetahui sama ada objektif tercapai. Akhir sekali, reka bentuk dan proses garis panduan dan prosedur untuk menghasilkan corak didokumenkan.

ABSTRACT

The purpose of this research is to analyse, develop and fabricate new tactical knife for military using long forgotten Keris technology. A tactical knife is a knife with one or more military (martial) features designed for use in extreme situation. In popular usage the terms "fighting knife" and "tactical knife" are frequently employed interchangeably, despite the fact that a tactical knife is principally designed to be used as a utility tool, not as a weapon. The kris or keris is a distinctive, asymmetrical dagger endemic to Malaysia and Indonesia. Both a weapon and spiritual object, keris are often considered to have an essence or presence, with some blades possessing good luck, while other possess bad. The early function of keris is as a weapon to defend oneself, to preserve one's life, and to function as a close range weapon. Preceding the development of culture and art, the shape of keris changed according to the need and its contribution to human's life, among others it could indicate the social status of the owner of the Keris. Keris also functions as the symbol of power. The blade is made from different iron ores and often contains nickel. Usually, keris is produce using forging process. For this research, the selection of the design of the tactical knife will be made based on studies of literature review. The product design was drawn by using Catia software. Then, the drawing was transferred to the Catia software for analysis. Then, the drawing was transferred to the CNC machine and the manufacturing process began. Before fabricate, all selected design will be compare based on the criteria. As the design produced, it will be used to produce the tactical knife using the equipment provided at the FTK lab. Then,

conclusion of the overall project is made in order to find out whether the objectives are achieved. Finally, design and process guidelines and procedures to producing pattern are documented.

DEDICATION

To my beloved parents.

Roslan bin Mamat

Haema binti Md Yasin

For your love and demonstration the values of education since I'm still a little kid.

To my siblings:

Muhammad Abdul Halim bin Roslan

Nursyazwani binti Roslan

Muhammad Hurairah bin Roslan

Muhammad Ridhwan Bin Roslan

Muhammad Fadhil bin Roslan

Muhammad Zulkifli bin Roslan

To my beloved supervisor:

Mohd Idain Fahmy bin Rosley

For your love, encouragement, and support on this project absolutely invaluable.

ACKNOWLEDGEMENT

In the name of Allah, Most Gracious, Most Merciful. All praises to the Almighty Allah, for giving me the strength, patience and guidance throughout the process of completing this research study. I am grateful to have the support and motivation from many people throughout completing this study and I would love to take this opportunity to thank those who are either directly or indirectly involved during the process this study is conducted.

Most immediately, a special gratitude goes to my respective advisor, Mr. Mohd Idain Fahmy Bin Rosley, lecturer of Universiti Teknikal Malaysia Melaka for his precious advice, time, contributions, comments and guidance in every stage of this study. My utmost gratitude also goes to all lecturers from Faculty of Technologist Engineering (FTK) for being very nice and effective lecturer to me and thus, making this study easier to be completed.

My token of appreciation also goes to my beloved family members who never failed to be there for their love, support and prayers. Last but not least, I would like to thank all my friends, especially my home mates and classmates for their never ending supports. May ALLAH bless to all of you. Thank you very much.

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CHAPTER 1

INTRODUCTION

1.1 Project Introduction

The keris an elongated dagger is synonymous with the Malay culture and way of life, so no other weapon so characterizes the Malay word as the keris. Then, keris has always been the object of intense curiosity and interest to outsiders while it is surrounded by a variety of traditions. In the last century, the royal weapon is the keris have become a status symbol in the choice of Malay history and it continues to evolve to this day. The keris which have special significance have been used as weapons for defense yourself and ceremony used by nowadays generation. Furthermore, the keris and even more traditional weapons are its for traditional and showing and stay put as a Malay Heritage. While in a physical argument between two or more individuals at very shirt variety, this is because the blade will be designed to impose a fatal injury. Then, the combat knife is a military fighting knife. The personal or hand-to-hand fight is not just used in intended mainly. This is because the special function of weapons is fighting knives with designed based on the traditional design. Besides that, based on the combating knife in the field knife, its only one of function originally is different,

in modern usage is called the tactical knife. Tactical knife will be used for extreme condition with more military features designed, the design must be able to combat or combat arms maybe it include or not in a design capability. In world war, the combat knives gradually evolved into a fighting of utility in military service, an utility must be roles and it will be suitable for both combat knives. Finally, there are often used interchangeable about the terms will used such as "knife fight" and "tactical knife".

1.2 Background Study

To analyses what material and process that has been used during Keris making and transfer this long forgotten technology into new design which will be used by military. Fabricate the new tactical knife for military.

1.3 Problem Statement

Nowadays, the skills and technology of computer numerical control (CNC) machine pattern making is difficult to learnt and this will cause it to be more absolute in the future especially for young generations. In producing a successfully product, the design and process guidelines in pattern making must be well known and followed. To promote better designs and products must have the knowledge of pattern making. At UTeM, the facilities of computer numerical control (CNC) machine but availability of machine is limited. In current computer numerical control (CNC) system, they have highly automated using computer aided design (CAD) program with the end on component design. So, we must have knowledge and expert to use the computer aided design (CAD).

1.4 Objective

- I. To design and fabricate a new tactical knife for military.
- II. To analyze the strength of a new design of tactical knife and ensure the effectiveness.

1.5 Scope

- I. To study composition of the keris and normal tactical knife
- II. To process on making a new tactical knife for military
- III. To produce a new design of normal tactical knife by using CATIA
- IV. To fabricate a new normal tactical knife by using CNC machine
- V. To analyze the strength of the model

CHAPTER 2

LITERATURE REVIEW

The literature review is an evaluation report of information found in the literature linked to your chosen area of study because it can identify what has been made about a problem and how to solve the problem. The review should describe, summarize, evaluate and clarify the project which including substantive findings. It should give a theoretical base for the research and methodological contributions to a particular topic between literature and field research. The research can be found such as books, journals, articles, web pages and other report. From these sources, the literature review can be interpreted as a review of an abstract achievement, organized around and thesis results should be synthesized into a summary so that important areas can identified.

2.1 Keris

The Keris is a characteristic, asymmetrical with original blade to Malaysia, Brunei, southern Philippines and Indonesia. Keris is frequently well thought-out to have a soul or being there for in the both a weapon and spiritual item, with to have a good luck and others are bad on some blades consider.

2.1.1 History of Keris

Based on the history, there are more than a few different styles of keris. A royal guards and warriors are used on the largest war. Cradled in the left arm, they were more similar to blade; it's more than to straight practical blades, light in both mass and design. The more ordinary types back then were heavily decorated with round handles. An additional type is the short decorative keris designed for female royalty. Then, the different definition of the keris is since a practical weapon to a piece of decorative jewelry.

Then, in medieval world for blade or sword shown that firearm have been created generally view as the most widely used weapon. In the Malay culture, keris have many words will spelled and pronounced such as kris, kreese and creese. Before it expand throughout the Malaysia, Southern Thailand, Indonesian archipelago, Singapore, Brunei and Southern Philippines (Mindanao) then it originate in Java in the 9th century during the Sri Vijaya territory. It has more like close quarter fighting weapon with some parts of Cambodia, Laos and Burma.

Furthermore, a double edged stabbing weapon with just the once. Next, it's will sign of community rank and as a deterrent to the defense. It will used same like an implementation device for as an object of respect, a variety of ceremonies and rituals. The supernatural power was generally believed have in the keris by the owners.

There have major types of keris :

- I. Keris Jawa
- II. Keris Semenanjung or Utara (Peninsular or Northern keris)
- III. Keris Sumatra
- IV. Keris Bugis
- V. Keris Bugis
- VI. Keris Pattani
- VII. Keris Sudang (sulu or Mindanao in Philippines)

A straight or a wavy blade and each have its own characteristics. It will be lead changes according to condition by a few of people from them. For example, a sword (keris panjang) to oppose the Spanish rapier with the Mindanao keris will be customized and made longer. The materials will be used to make with iron, nickel, several alloys and a piece from a meteorite for to get a

good quality of keris. The terms will used on Empu in Indonesia and Pandai besi in Malaysia will be identified for the traditional keris makers. They will be working with the metal and a fashion the red hot metal with their bare hands with a few of empu will be through into a trance.

The keris are it shown on to his status of persons will be generally custom built for a specific person and it able to match with their owner. Measurement of keris should be match to length between the nipples of its owner. If the measurement is not match, maybe it can give bad luck may happen to user.

The owner's status could be defined based on with the number of lok and every wave on the keris will be called lok. While a Rajah's (Sultan's) keris can be nine, the warrior have the keris with three luks. This is it will present their wave of keris by the Naga or cobra.

The power able to leap out of its sheath and keep the enemy in battle with himself believed that into the keris. When the owner of imminent danger situation, the rattle in its sheath will be give warning to the owner. In Malay traditional is trusted it known to take off on their own and slay the foe when that keris will attached to the main beams of traditional Malay houses as a talisman.

The word like as "wrangka" in Indonesia and "sarung" in Malaysia is identified same like the sheath for normally denotes the owner's status. There have a specified color for different meaning such as the Sultan or his close relations will use red, Ministers will use green, courtiers will use brown and

people will use black in general. While the Sultan want an appreciation to their warriors, normally sultan will presented a keris.

An owner can forward one's keris with their son or close relation and the host believe that he must attended because it can hold in high regard that if one cannot be there a wedding or ceremony. The owner of keris will be signified admit defeat while their giving up one's keris.. The Malay people trusted that for complement his clothes, it must be clothed Malay would regard as himself "naked" devoid of his keris.

While it simply thrusting the blade into his footprints for assumed that he can hurt their foe. Then, at the point of a keris will be drawn by water and the pointing the tip at the fire will be fire from a burning ship will be transferred to beach.

The legendary Malaccan warrior Hang Tuah have the most famed Malay dagger is the "Keris Taming sari". That person will be invincible when obsessed it. Then, the legendary "Excalibur" was Malaysia's equivalent of King Arthur's sword. The people believed that after Hang Tuah killed his childhood friend Hang Jebat in a fight, he throw the "Keris Taming sari" into the Sungai Duyung River. This is because to the latter's betrayal to the Sultan of Malacca.



Figure 2.1.1 :Keris with luk

The users of keris are necessary to oil the keris and to keep hold of the weapon's supernatural powers with bathe for the period of the month of Muharram. The keris are neglected because it can cause the protective spirit of the missing weapons and leave it powerless.

When to remove rust, oil and grime, it usually used a lime is cut in two and one half will rubbed on each side of the blade. Then, it carefully rinsed in running water. After that, the knife blade will be dried over a low charcoal fire. On the blade, handle and sheath will be applied by fragrant oil (atthar).

The sword which needs space and it will difficult to use for fighting in jungles or confined spaces. But is not same with the curved wooden hilt is designed to well easily into the hand with a 10" to 15" long blade for close fight.