SMART WEAVER KNITTING KIT MACHINE (AUTOMATIC)

RACHEL A/P ARUL
JAYA SRI KAUSALYA A/P K.GANESAN
KUBENDHRAN A/L ANANTHAN

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Jabatan Kejuruteraan Mekanikal, Politeknik Seberang Perai
Jalan Permatang Pauh, 13500 Permatang Pauh, pulau Pinang.
Telefon: +60 45383322, Fax: +60 45389266

ABSTRACT

A neuropsychiatry study found that engaging in activities such as knitting could reduce the chance of developing mild cognitive impairment by 30 to 50 percent for people. Knitting is especially good for this, since it requires you to use many parts of the brain at the same time. Weave Knitting is a very social activity which everyone prefers to do in their daily life routine. This knitting process made by knitting kit machine. The main drawback of this method is low production rate as it totally depends on manual process. Lately user was subjected to limited flexibility and fatigueless over time. With an increase of demand, more sophisticated and efficient knitting making process has to be created. Any knitter can do best with a knitting machine and because of that Smart weaver knitting kit machine is an innovation project mainly designed to help them. The whole fabrication for the machine was performed in Vocational Collage, Seberang Perai Workshop. Main material is used for this machine was motor which used to control the movement of machine. Operational testing has shown that this Smart weaver knitting kit machine successfully automates the manual work by allowing the user to experiment with various yarn and pattern styles. This result has indicated that Smart weaver knitting kit machine perform way better than the manual knitting kit machine.

Keyword : Smart weaver knitting kit machine, innovation project

CONTENTS

TAJUK PROJECT: SMART WEAVER KNITTING KIT MACHINE

1.1 INTRODUCTION

Knitting is a craft which not everyone has learned to be skillful at after all, it takes a lot of patience and knowledge for one to create even the simplest of patterns. Smart weaver knitting kit machine resolves the frustrated inner knitter in us, and it makes any task much easier than by doing your creations manually. Knitting machine automates the tedious hand work by allowing the user to experiment with various yarn and pattern styles without compromising the quality of the product. Resembling a small bucket with tiny legs, this best home knitting machine boasts of having a very fluid motion in its circular contraption that would sturdily hook up each stitch to another. By turning the knob which allows the yarn to move in circular motions, the desired outcome will come up soon enough.

PICTURE 1

PICTURE 2

1.2 BACKGROUNDS OF THE PROBLEMS

A smart weaver knitting kit machine makes knitting so easy; in fact, lack of knowledge on how to operate the machine kit in manual mood will be more complicated. This means that you will easily can't be able to make anything or any clothes in this mood. It includes 22 needles arranged in a circular motion. You can be able to knit small diameter pieces for sometimes. You can also make wider items when you stitch patterns together. Just crank the handle attached to the circular knitting machine and able to knit stitches with it. Figure 1.1 shows the smart weaver knitting kit machine. From the right is shows the paddle.

FIGURE 1.1

To know the problems that having in the knitting kit machine have some research on Internat. https://youtu.be/3IVN2ij_5Yk

The most common problem that faced in the tutorial by using this machine is risk of having hand problems. By using hand energy might have possibilities of hand pain that is more than just annoying. The stiffness and swelling that go along with hand pain can sap strength and diminish the ability to carry out routine functions. Furthermore, possibilities of having damages. Damages like risk of broken handle. The harder push the handle the higher risk of handle broken. Moreover, do not rotate the handle too fast, or it will drop stitches easily. Besides that, without basic knowledge of knitting it will be difficult to understand the process of machine kit and also difficult on using tools of the machine such as stitches, needles and also in applying the thread on the machine kit .

For more evidence have research on this link

https://www.google.com/url?sa=t&source=web&rct=j&url=https://www.tradewindknits.com/best-circular-knitting-machine/&ved=2ahUKEwi3p_zT587oAhX3zTgGHRvgCmEQFjAMegQIARAB&usg=AOvVaw3mEec-b723P1skS7pz8TQw&cshid=1586005049399

1.3 PROBLEM STATEMENT

FIGURE 1.2

Figure 1.2 shows the method on how to use the smart weaver knitting kit machine. Method of pushing handles in manual work out for few days and few cloths. This is because method requires consistent arm strength. Besides that, lack of knowledge on how to operate manual mood. If production is to be done in a medium and large format, a more efficient method is needed.

1.4 OBJECTIVE OF PROJECT

- Attached Smart Weaver Knitting Kit Machine (Automatic) by using motor.
- Using Bluetooth device to switch on/ off the machine kit by controlling in our own phone.

1.5 SCOPE OF THIS PROJECT

- Purpose of applying high-risk lessons to students learning knitting machine.
- Useful for knitting kit beginners who is new to learn.
- Help the lecture explain a subject in classroom with this project.

1.6 BENEFIT OF THE PROJECT:

Our project will help for students to learned easily by using it practically. This machine can carry anywhere, and it will help kids to play and gained some knowledges on this. They will give interested in this field since early childhood. Lastly, it will be produced knitted fabric with a limited time and save money, and energy.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction:

Innovation in produced Automatic kit knitting machine in this generation had been increase actively since past 5 years. Created new shape to developed in this machine to give new knowledges and advantages for students to learned more about this. In this chapter will peeling the type of kit knitting machine which is developed before this, included the operating mechanisms, shapes and manufacturing cost.

2.1 Analyze the Existing Design

2.1.1 Knitting Machine

A knitting machine is a technology used for knitting fabrics. The way it interloop one set of yarn with another with the use of needles is an overwhelming sight. You can just imagine how both easy and difficult it is to form the clothes you wear.

2.1.2 Hand Knitting

When you think of it, people used to knit their clothes with all the effort and hard work. Knitting machines have changed the way we think about clothing and fabric. Since its invention in 1579, the business of making clothing transferred into small cottage industries, making hand knitting non-essential, a recreational activity.

Figure 2.1 Hand Knitting

Innovation has quickly transformed the growing capabilities of knitting machines in forming knitted fabrics and today, you can choose from a variety of knitting machines for your textile industry.

2.1.3 Weft Knitting Machine

Weft Knitting Machines are used to make weft knitted fabrics by just a single yarn. Knitting in weft is a more common method than warp knitting. In Weft knitting, the looms are knitted horizontally in a circular form from left to right of the fabric. Weft knits are made from a yarn fed into the circular knitting machine needles.

Figure 2.2 Weft Knitting Machine

2.1.4 Warp Knitting Machine

On the other hand, Warp knitting is done by knitting in a zigzag pattern along the fabric area. While weft knitting is done by knitting across the fabric, Warp knitting is accomplished by running knits through adjacent wales or columns.

Figure 2.3 Wrap Knitting Machine

2.1.5 Warp knitting machines and Weft Knitting machines can be further classified into many types of knitting machines listed below.

Weft Knitting Machine:

1. Circular Knitting Machine
    1. Single Jersey Circular Knitting Machine
        1. Plain Single Jersey
        2. 2 Track 4 Track
        3. Terry and Fleece
        4. Jacquards
    2. Double Jersey Circular Knitting Machine
        1. Rib
        2. Interlock
        3. Pique

2. Straight Bar Knitting Machine
    1. Single Needle Straight Bar Knitting Machine
    2. Double Needle Straight Bar Knitting Machine

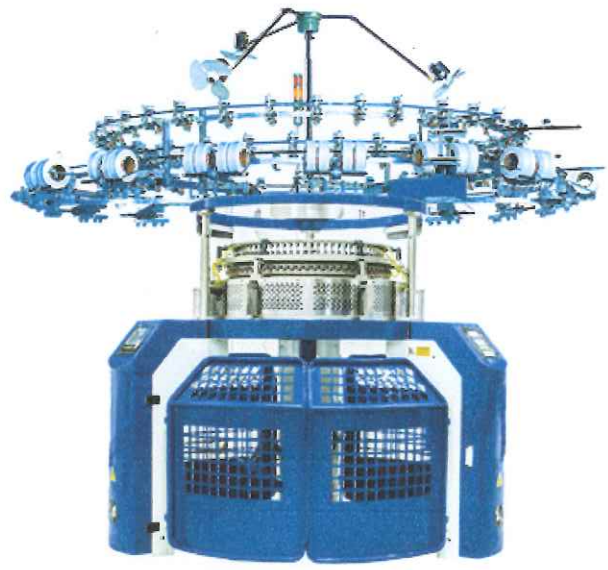
3. Flat Bar Knitting Machine
    1. Flat Bed or V-Bed
    2. Single-Bed
    3. Unidirectional Bed

Warp Knitting Machine

1. Raschel Knitting Machine
2. Tricot Knitting Machine

2.1.6 Circular Knitting Machine

A Circular Knitting machine is one of the most popular knitting machines in use today. Even hobbyists make use of a small circular knitting machine to create their own knitted pieces such as sweaters, gloves, scarfs and many small diameters sized creations.



The mechanism of the industrial Circular Knitting Machines used to create apparels in large volumes and fast production rates is simple. Fabrics are knitted in spiral and cast on. The circle of stitches is joined forming seamless tubes. The layers it produces are counted on as the number of rows.

Machines of this type can produce a wide range of diameter from 12 inches to 60 inches. It can knit a variety of sportswear and fashion clothing and apparel in an incredibly fast rate.

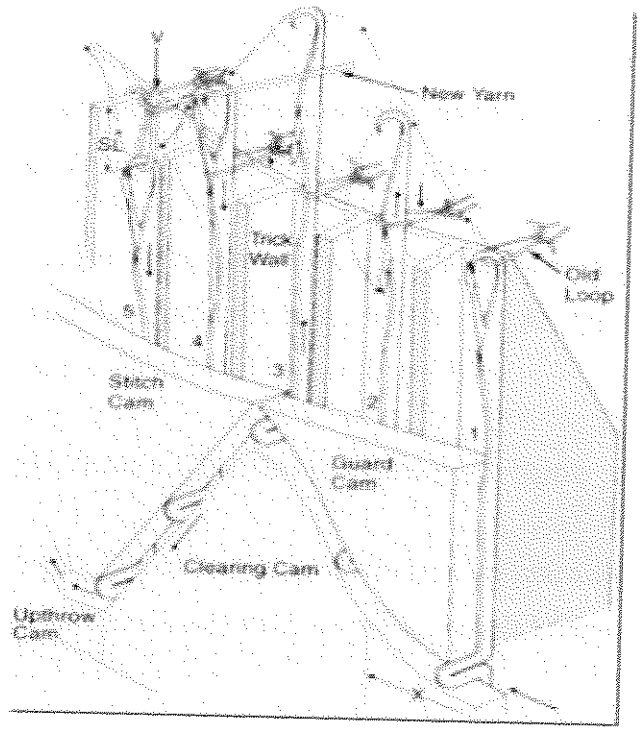
Application of Circular Knitting Machine

This kind of machine is made for manufacturing fabrics of:

- Jackets
- T-shirt
- Ladies tops
- casual wear
- Suits
- Dresses
- Bath robes
- Dressing gowns
- track suits
- Upholstery
- jogging suits
- Jersey

2.1.7 Single Jersey Circular Knitting Machine

The Single Jersey Circular knitting machine is a modern machine and has a simpler design than the Rib Machine (Double Jersey Circular Knitting Machine). Also called Plain Circular Latch Needle Machine, it consists of a set of latch needle and a set of the sinker. Both revolve along different knitting cam systems that cause a calculated and accurate up and down motion. This mechanism also involves the movement of the yarn feeders that are placed at equal intervals along the circumference of the knitting machine cylinder.



2.1.8 Plain Single Jersey Circular Knitting Machine

Simply put, this machine is the simplest circular knitting machine containing only 1 track of cams that produces plain single jersey fabric. Only one set of latch needle is used. The cylinder, sinker and latch needle revolve along the stationary knitting cam systems producing the desired density, thickness and ideal properties of the fabric.

2.1.9 2 Track, 4 Track Single Jersey Circular Knitting Machine or Multi-track Single Jersey Circular Knitting Machine

Two and Four Track Single Jersey Circular knitting machines can produce a variety of fabric designs for its configuration is specially constructed for high production purposes. Material ranges from cotton, yarn, pique fleece, two-thread fleece, T/C, synthetic fibres and mini-jacquard. With this machine, you can flexibly choose the number of cams for different fabric demands.

2.1.10 Terry and Fleece Single Jersey Circular Knitting Machine

Fleece fabric, like comforters, towels, bathrobes and some winter coats are quickly made with the Terry Single Jersey Circular Knitting Machine.

Terry Knitting Machines makes plain fabric on one side with the back loop inserted with a number of wales (2-3 wales). The back area is brushed as to make the fabric warm and tingly. The threads used can be fine at the top and course for the back.

2.1.11 Jacquard Single Jersey Circular Knitting Machine

Jacquard Single Jersey Circular knitting machine is designed with a three-position needle selection options – knit, tuck, and miss, allowing complex Jacquard fabric patterns to be made.

Jacquard fabric is the most intricately styled fabric as it has a raised texture design that usually include flowers, brocade, matelassé, paisleys, damask and animal patterns.

2.1.12 Double Jersey Circular Knitting Machine

This type of circular knitting machine has two forms, known as Rib Machine or Interlock Machine. In the Double Jersey Circular Knitting Machine, two sets of needles are contained in the machine.

The cylinder has one set and the dial has the other set of the needle. The dial and cylinder needles are arranged in a perpendicular manner. Cylinder cams and Dial cams are two different set of cams takes control of the knitting action. This arrangement can either be interlocked or ribbed while producing the fabric.

2.1.13 Rib Circular Knitting Machine

The most notable feature of the Rib Circular Knitting Machine is the rib structure it forms on the fabric. A rib structure is formed by the face and back loops occurring along the course successively while the loops of the wales remain the same.

Two sets of needles are used in a perpendicular position with each other. Both the dial and cylinder revolve with the cam systems of the feeders remaining stationary. Cylinder needles move vertically while the dial needles move horizontally.

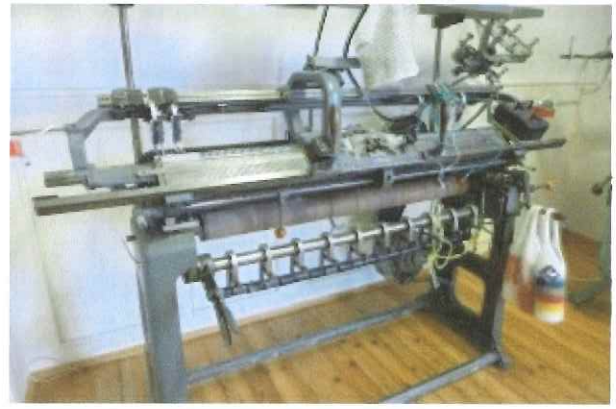
2.1.14 Interlock Circular Knitting Machine

Interlock is a 1×1 rib variant structure. Two sets of needles work in both cylinder and dial that accomplishes at least two processes. With Interlock Circular Knitting Machines, purl structures can also be made. These Purl fabrics are knitted on specialized machines allowing dual-ended latch needles and special devices of drive them and form intermeshed loops in two directions.

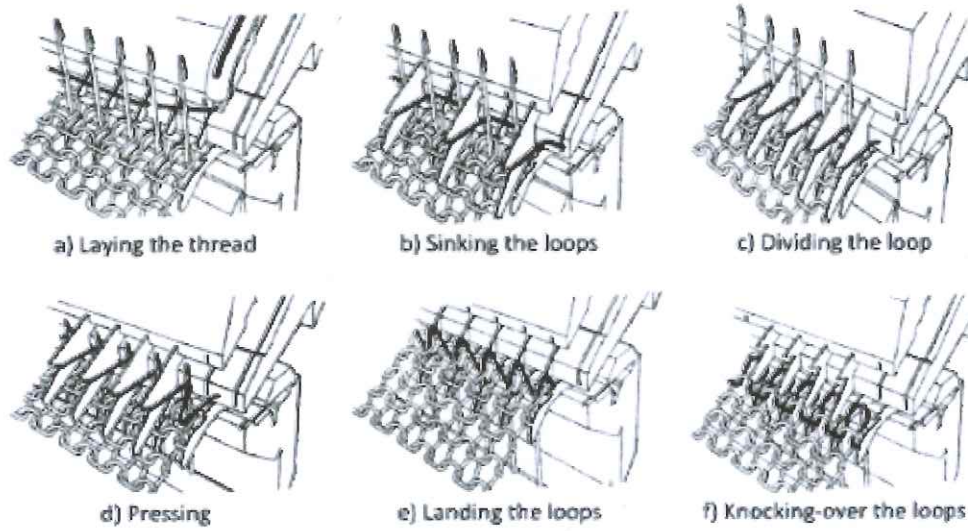
2.1.15 Pique Circular Knitting Machine

Pique Circular Knitting Machines manufacturer textures with the waffle weave look of Pique fabric. This type of fabric differs from your jersey clothing as it has a rough-look texture whereas jerseys have flat and smooth surfaces.

2.1.16 Straight Bar Knitting Machine



Straight bar knitting machine have bearded needles on a vertical bar. Movement is controlled by the accurately constructed cam system. Divisions are equally distributed along the length of the machine in a number of heads. Each knitting head can knit separately in a uniform way along the garment panel.



2.1.17 Single Needle Straight Bar Knitting Machine

Straight bar frames usually have a single needle bar. This configuration, however, makes it incapable of knitting rib welts.

2.1.18 Double Needle Straight Bar Knitting Machine

Double-needle straight bar knitting machines have horizontal and vertical needle bar for knitting rib welts, but the performance of these machines is much slower than the previous machine type.

2.1.19 Flat Bar Knitting Machine

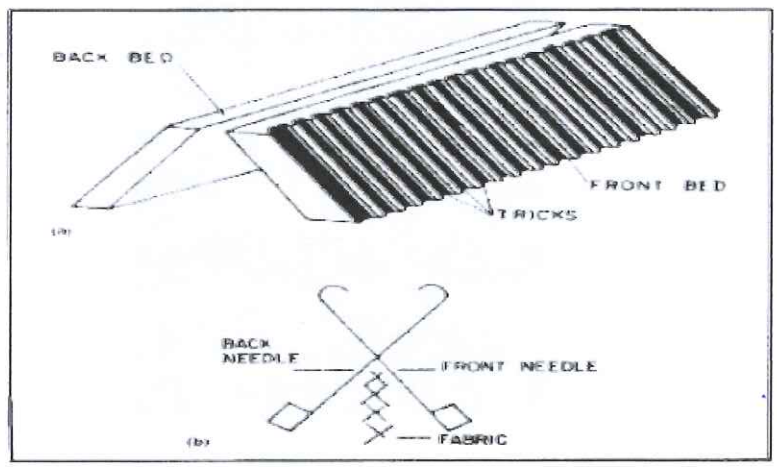
Flat Bar Knitting machines are most suitable for flat or 3D creations but is also applicable in creating tubular knits like circular knitting machines. In this type of fabric knitting machine, the needles are arranged on a straight bar. The mechanism follows a back and forth movement of the carriage containing the yarn feeders through a horizontal path.

Application:

- Collars
- Arm bands
- Sweaters

2.1.20 Flat Bed or V-Bed Flat Knitting Machine

A "Flat" or Vee Bed knitting machine has two flat needle beds having an upside-down "V" formation. Needle beds can stretch up to 2.5 meters wide. A forward and backward movement of the carriage known as the Head or Cambox works to move the knit, tuck and transfer stitches. This type of machine can make complex knit designs and sophisticated stitching. Knitting speed can be up to 0.5 m/s.

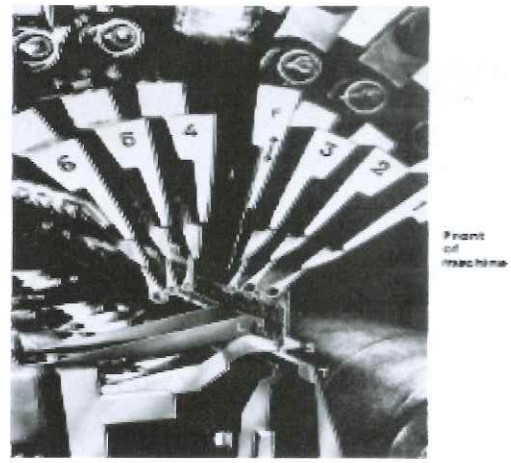


2.1.21Raschel Warp Knitting Machine

Raschel Warp Knitting Machine makes warp knits to form fabrics. In comparison with the other warp knitting machine, the Tricot, Raschel uses coarser yarns. In fact, there has recently been interest in knitting staple yarns on these machines.

The mechanism is as follows. The warps are twisted and locked with a loop from a succeeding warp. This will then be shifted back by another warp to the preceding layer of knitting. Needles move in a steel plate known as the trick plate. It functions to limit the top level of loops.

The pull of the yarn and sinkers limit the loops. This type of machine has locking belts relatively perpendicular to the plane of the shaking motion or slogging motion.



Application of Raschel Warp Knitting Machine

- Lace fabric and trimmings
- Military fabrics
- Outdoor applications such as backpacks, pockets and pouches
- Bag
- Coats
- Dresses

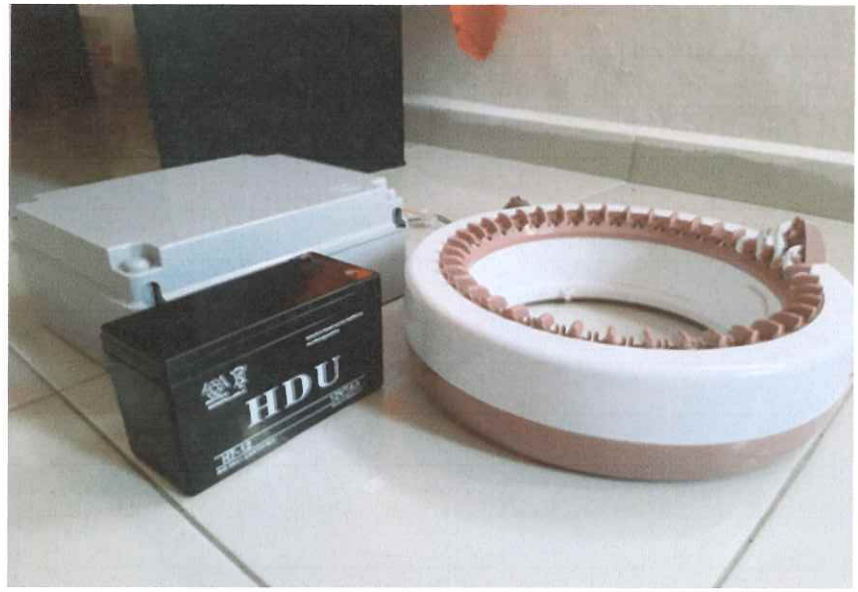
2.1.22 Tricot Warp Knitting Machine

Tricot machines produce warps knitted fabrics that are finer than Raschel Machines. Compound needles are used in this type of machine. Warp yarns are fed to the needles through the situated guide bars by the slogging motion of the machine.

Application of Tricot Knitting Machines

- Swimwear
- Underwear
- Sportswear
- Gloves

2.2 Study on Design



In our project, we are using substitution materials for this project. And then, we change the system control that using in mobile and we will create an application for control this product. As usually we using motor engine to run on automatically. Those components are most needed to run the Knitting Machine Educational Study Kit.

2.2.1 Factor of design

The factors of design are consisting of;

- Different types of materials
- Different types of function
- Less danger
- Simply construction method

2.2.1 Advantages of design

- Less space required
- Able to move anywhere
- Able to understand easily for students
- Easier for lecturer to demonstrate
- Operates own self
- Less harm will cause

2.3 Materials

We discuss the material to be used to produce this product. The materials that we are using as components consists because each of materials have different types of function and advantages. Those materials that we are using in our project 'KNITTING KIT MACHINE AUTOMATIC'.

Eagle table

uthor / roduct esigner	Websites	Materials	Cost	Others	Function
ndre andarra	https://youtu.be/yM4Rb0DTyKU	• 5 small prototype iterations of the needles and retainer mechanism on an individual basis. •the cranking mechanism (gears) and the lifting mechanism that will lift each one of the needles	•Moderate price	Used autoCAD app (design the modal)	•Socks •Hat