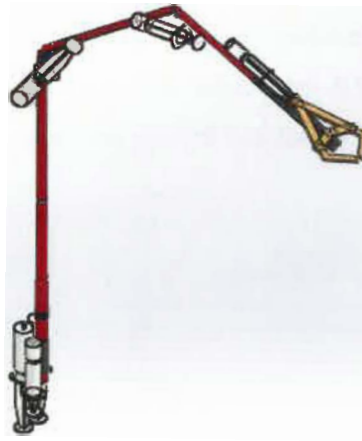




MEC 332

PORTABLE MECHANICAL ARM

(PORTAMECHARM)



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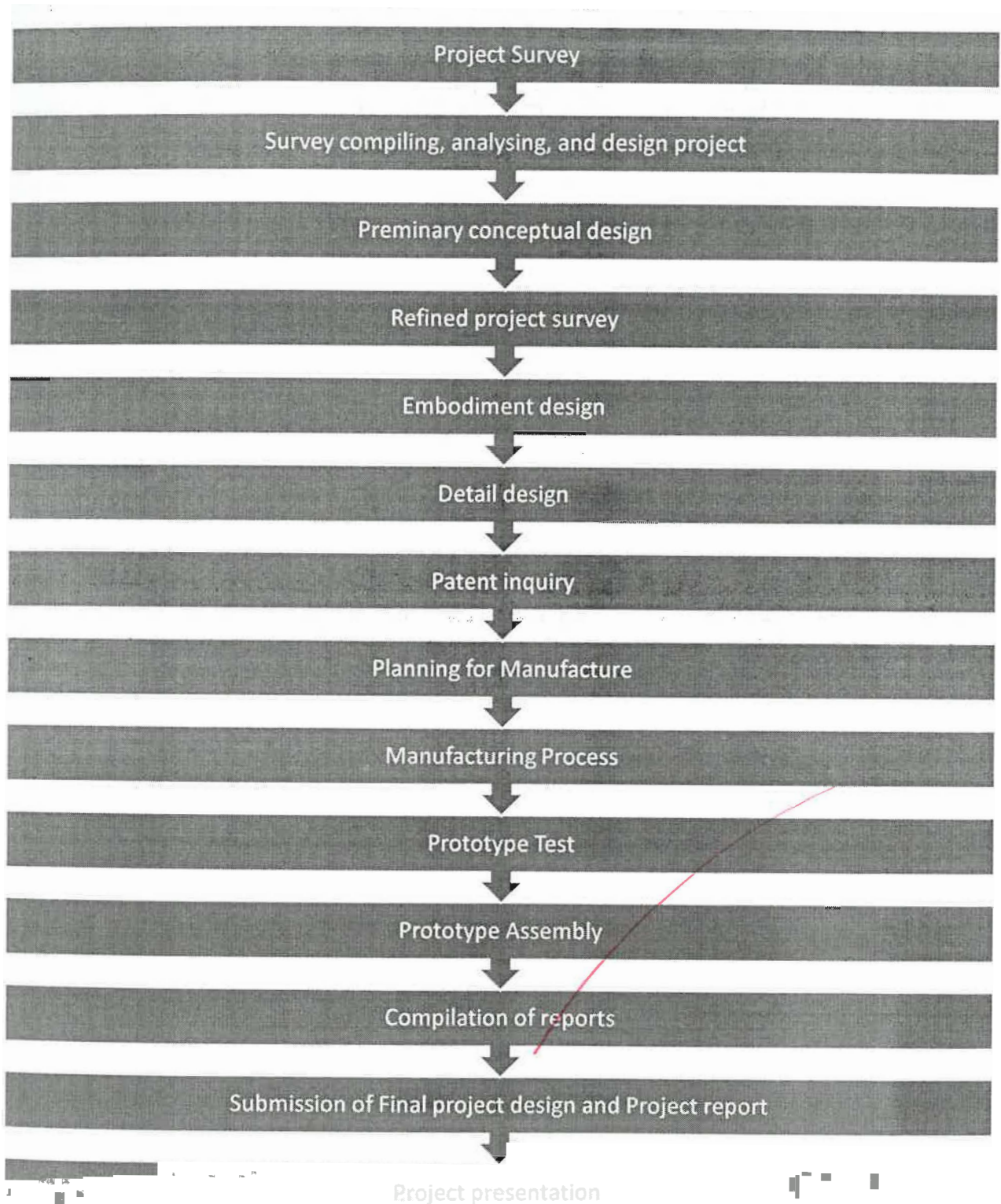
CHAPTER 1 : INTRODUCTION AND FLOWCHART CONTENT

INTRODUCTION

Hydraulics is used in many applications we see or use every day. The brakes in an automobile or the lift on the bucket of a tractor are two very common applications. We can experiment with simple hydraulics using plastic syringes for cylinders and small plastic tubing for the hydraulic hose. One definition read for hydraulics was, “the movement of pressurized liquids through confined spaces”. Like working with gears, pulleys, or levers; a mechanical advantage can be realized by using different size cylinders on the end of the hydraulic connections. By trading distance moved with the amount of force the advantage is realized.

Based on this statement, we have plan to make a portable mechanical arm (portamecham) which is hydraulically and controlled by syringes filled with some fluid. It consist of various parts connected to each other in a pre-designed manner which are guided in a constrained way to obtain required output

FLOWCHART OF THE PROJECT



CHAPTER 2 : DESIGN PROBLEM DEFINITION

2.1.1 GENERAL NEED FOR A PRODUCT

The Portable Mechanical Arm (portamecharm) is a mechanical device that use simple hydraulic system to operate. As ~~me~~ all know, ~~we~~ having a many problem in daily life such as to reach any item that unreachable by hand. Car keys drop into drain and an item at high place is example of this problem. Besides it, our product is design to avoid user from get any injury in handling hazardous material such as hot material, contaminant object and sharp object. So that ~~we~~ invent one device to overcome this problem which is name “portamecharm”.

“Portamecharm” is a device that use hydraulic system to operate. Originally from excavator, which can be uses to do heavy duty work. Since it is portable, ~~we~~ use only simple hydraulic system and have limited weight can be hold. To ensure it operate efficiently, ~~we~~ use some syringe as an actuator and it with tube to transfer the liquid. The syringe will mounted at every arm.

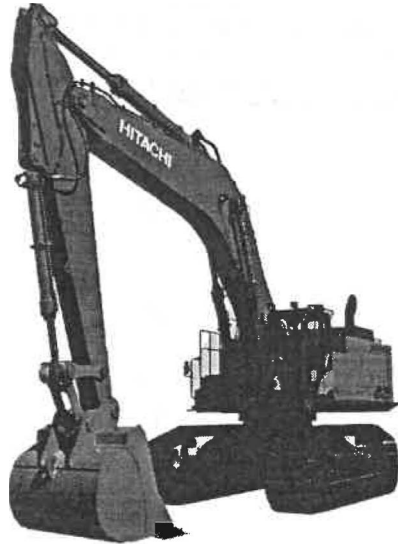
2.1.2 DESCRIPTION AND ESTIMATION OF MARKET SIZE

The “portamecharm” is a device that will help the user to get unreachable item easily and unsure handling the hazardous material safely. Our product is still in early age of production so our target market is to those were married. It is because our product will help any family members to get any item that in high and narrow place and to ensure user always in safe situation when handling hazardous material. So our target is to sell this product to mothers because usually they will have limited ability to get any item unreachable place. Beside that, they often do the job that involve hazardous material. By using our product, user can make sure the safety and easier them doing something.

It can't reach the narrow space

Limited to heavy and big object only. Small object will drop out from the holder

High cost and high skill required to operate



2.1.4 OPPORTUNITY FOR COMPETITIVE ADVANTAGE

Unlike its competitors, the portamecharm is more portable and user can use it anytime and anywhere. It uses a simple hydraulic system to operate and can be used to reach any item at high or narrow places. There are some advantages of this product:

It is portable. User can carry it anywhere and anytime to use.

Can reach an item at high and narrow places. User who has a problem to reach an item by their hand can use this product.

Lightweight. Easier to manage it.

Low cost as compared to excavator.

Do not require high skill to use it because it only uses a simple hydraulic system to operate.