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RESEARCH AND INNOVATION UNIT

TITLE OF PROJECT: VERSATILE AV CABINET
DEPARTMENT: CIVIL ENGINEERING

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1.0 PROBLEM STATEMENT

Nowadays, home dwellers are unable to arrange the house as not all home residences have a spacious living room and bedroom. The design of apartments and houses tends towards a smaller square of space resulting in the need for better furniture selection. The problem of limited space should be overcome by minimizing the size of the furniture without reducing its functional. In fact, it has influenced the selection of furniture such as AV cabinets and others. In addition, the selection of furniture such as television cabinets plays an important role in optimizing the living room and bedroom.

The existing AV cabinets on the market today have only one shape, which is just a straight shape and not suitable for placement in various corner. So, it can fill the living room of the occupants and make the living room narrow. Other than that, the selection of wood also plays an important role because the quality of the wood must comply with the manufacture of the furniture. AV cabinet is furniture for long use. If the AV cabinet is made of heavy wood, it will be difficult for the occupants of the house to lift and move it to another place. The emphasis of producing versatile AV cabinet to upgrade the existing cabinet in the market. The product need to be upgrade.

2.0 RESEARCH METHODOLOGY

2.1 History of cabinet television

Cabinet is a loose item. It serves as a catchall for an amorphous range of piece, from simple open shelves to complex breakfront. The most involved design incorporate the cabinet space such as shelves behind the door, glazed or not and drawer and sometimes open shelves too. While there are some size conventions for each type of furniture to guide it, dimension should be dictated by your particular need and circumstances (Bill Hylyon,2010). Cabinet television is a cabinet have been designed to have the television put on the top shelf. Some television cabinets also feature some open shelving in addition to the cabinets. Currently, an apartment and home design has influenced the selection of furniture such as television cabinets and other.

2.2 Size of television

Size is an important factor when we are considering the purchase of an accessory. When they purchase things like shoes, clothes, caps, chairs, tables and so on, they consider the size of them depending on taste and how it will fit the style. Well, the same thing goes for television stands. Size is usually considered by both the manufacturers as well as the users of the furniture because these television stands are used for different purposes and are installed in different locations so they never can tell which size will be suitable for the required duty. "These Television stands are small for a reason, there aren't large like other stands, but are designed to equip quite a lot of television equipment just as much as a large one can contain

2.3 Standard size of living room

In Western architecture, a living room, also called a lounge room (Australian English), lounge (British English), or sitting room (British English), is a room in a residential house or apartment for relaxing and socializing. Such a room is sometimes called a front room when it is near the main entrance at the front of the house, it is also known as drawing room.in large formal homes, a sitting room is often a small private living are adjacent to a bedroom, such as the Queen's Sitting Room and the Lincoln Sitting Room of the White House. The term living room was coined in the late 19th or early 20th century. Most living rooms are connected to the dining room. This makes the living room look bigger than the ordinary living room.

2.4 Block board

Block board is one type of engineering compound plywood board where softwood strips are joined edge to edge and bonded together machining often a sandwich structure placing hardwood between them. Block board is usually found in the normal size and thickness. 2440mm × 1220mm × 30mm. The lightweight of block board made it convenient to use. The bulk of the board made up of core block was popular for its light weight as made from softwood and easy transportation. BWP (Boiling Water Proof), one variety of block board are stronger enough and resistant to both water and humidity.

Advantages of the block board is the stability of the block board are well enough. These can even show stability in humid environment those have moisture resistant. Block board are inexpensive. It can take varnish, paint, and laminate coat on the surface by using glue. Block board are good screwing and nailing. For warping and twisting is good choice for its resistance quality. They can hold screw, nail and laminating coat and for this, it is easy to work on it. Carpenter can easily use their wood processing tools also for block board. The lightweight of block board made it convenient to use. The bulk of the board made up of core block are also popular for its lightweight as made from softwood and easy for transportation. BWP, one variety of block board are stronger enough and resistant to both water and humidity.

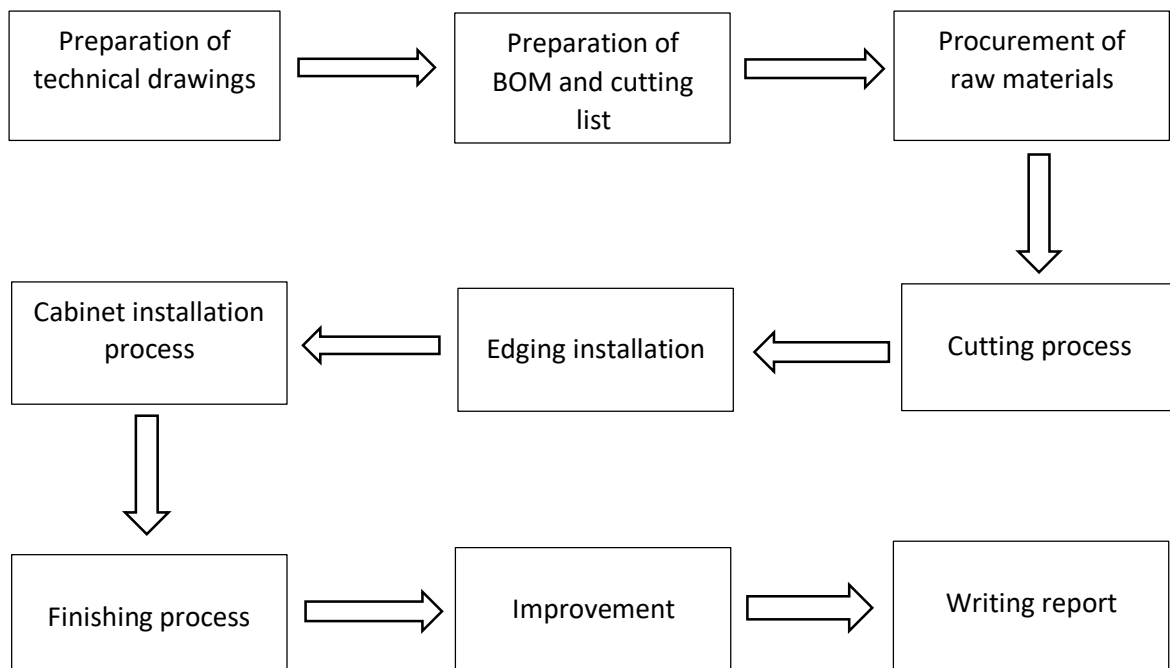
Disadvantages of block board are lighter in weight so not much dependable hard material. There are weaker, don't have long durability. The unwanted gap between softwood strips make them difficult to work for carpenters. Screwing and nailing must be done carefully otherwise it may crack. Shrinkage and swelling of the board may occur. Deterioration of block board is not guaranteed. If the strips inside are from cheap, low quality, wood may be attacked by insects, (Shanta Urmila Mou, Civil Engineering).

2.5 Formica

Formica was first developed in 1913 to replace the mica mineral used in electrical insulators. The first Formica was made from fabric and resin, but later formulations used thick paper layers laminated with melamine. This development was tougher and more durable, making the new material a key component of car parts, propellers and industrial components needed during World War II. As the war effort subsided, Formica found its way into domestic uses. The paper backing could be printed with vibrant colours and patterns, offering an unprecedented opportunity for designers of home and commercial furnishings. Formica tables and countertops became a key part of the colourful design revolution ushered in by the 1950s era of post-war abundance (Jan burch, 2015).

2.6 Flow Chart of Methodology

This section will describe the methodology of the project being done. It showed each step of the project execution.



3.0 SOLUTION PROPOSAL

The proposed solution in terms of creativity is Versatile AV cabinet has main tower and twin towers. The twin towers that can be placed and change the cabinet of various shapes such as straight, L-shape, U-shape and Z-shape. It also can save space because the twin towers can pull and push it back if not in use. This is because it uses a turning disk to change it to another shape and full extension to pull it. So it will enhance one's creativity to arrange the living room or bedroom.

Beside that when choosing furniture for the TV, need to pay high attention to the material, because not only the aesthetics of the product, but also its strength depends on it. So, block board is a kind of engineered compound plywood. It is used for various purposes. Block board are used in the construction of railway carriages, marine and for furniture making such as table, door and other. Block board are inexpensive. Advantages of the block board is the stability of the block board are well enough. The lightweight of block board made it convenient to use.

Among the added value of the product are Versatile AV cabinet is easily to move and changed the shape because it has wheels under each corner of the cabinet, so it can be easily move without losing much energy. That is why we are trying to upgrade the product in order to make it more valuable and bring the idea move forward.

4.0 BENEFIT

Among the benefits obtained by the community is the availability of a versatile AV cabinet, the whole family can gather and spend time at any time to watch interesting TV shows. It can further strengthen the relationship between family members. Other than that, it can facilitate the community in terms of energy because the community does not need to use a lot of energy to lift it. It has wheels to move it. In addition, it can save the space of the community house so that it does not look cramped and full of other furniture. Furthermore, it can help the community to arrange the living room and bedroom according to their own taste and further enhance one's creativity to arrange the house space.

The benefit of economy is the future of the local furniture industry, in particular wooden furniture can be said to be very bright. Here because the furniture industry has proven to give significant contribution to economic development country and can improve the national economy in the wood manufacturing industry.

The benefit for the country is to be able to make the country rich with the production of a lot of wooden furniture. can make a country that prioritizes furniture design from the result of a combination of traditional and modern.

Finally, the benefits for the environment are suitable for home furniture. Block board laminated with Formica are not easy to expand or peel off quickly if exposed to water or exposed to damp air.

5.0 HOW TO IMPLEMENT / METHOD OF USE

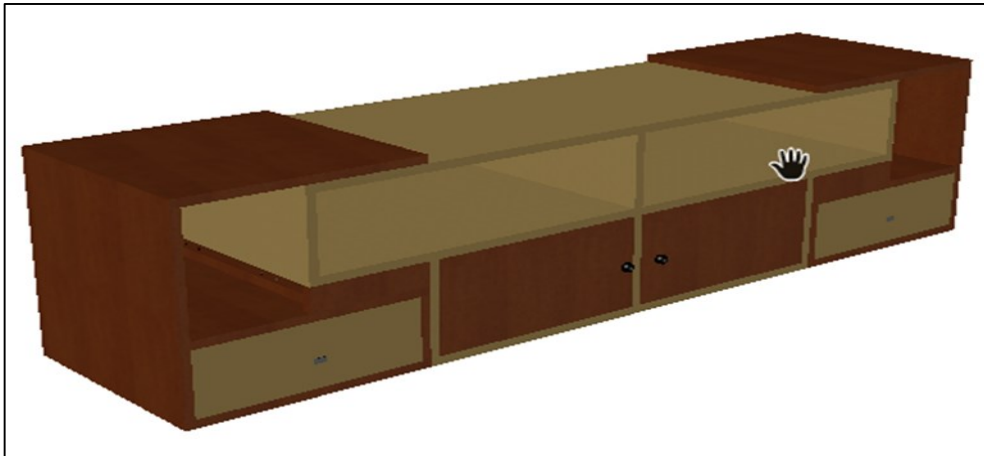


Figure 1

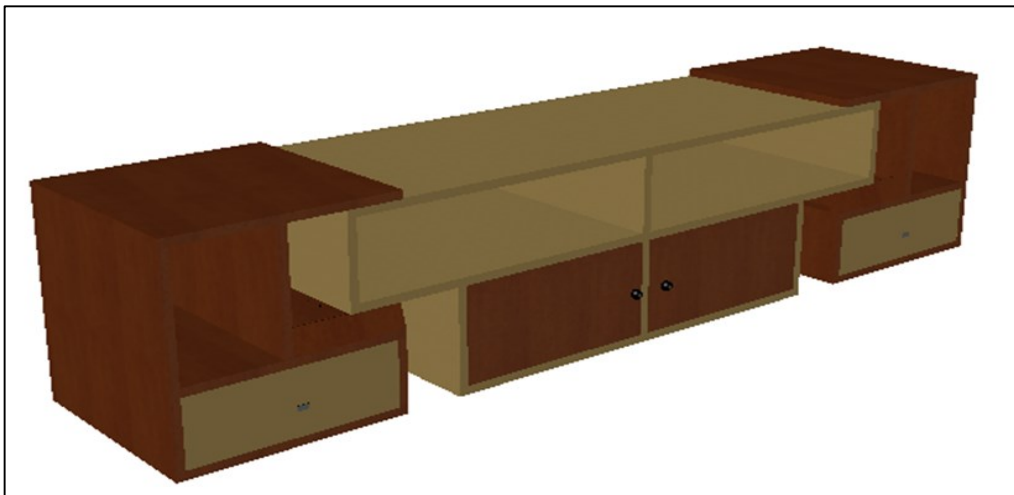


Figure 2

Figure 1 and Figure 2 show that the Versatile AV Cabinet can be pulled and pushed on both sides of the drawer in a straight line.



Figure 3

Figure 3 shows the Versatile AV Cabinet in which both sides of the drawer can be rotated to produce shapes-Z, L, and V according to the user's taste

6.0 CONCLUSION

Overall, we conclude that this Versatile AV Cabinet will be very suitable for all families and genders 20 years and above. The material for the Versatile AV Cabinet is block board because it is very suitable for home and using lightweight material. So users can easily change and organize their AV Cabinet. Sometimes if we notice, there are a handful of users who do not have the opportunity to organize AV Cabinet. So, with the Versatile AV Cabinet this can reduce the problems faced by users.

Hopes that the objective can be achieved which is to produce an innovative and multi-angles the cabinet by making the main cabinet clamped with both sides of the twin towers that can move to various shapes of angles according to the angle of the living room.

7.0 APPENDIX



Cutting process



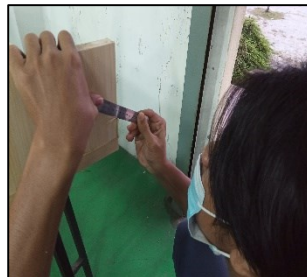
Formica cutting process



Formica installation



Cabinet installation process



Edging process



Trimming process

