

DEVELOPING AN IDEA

V.Ryan © 2000 - 2010

On behalf of The World Association of Technology Teachers

W.A.T.T.



World Association of Technology Teachers

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DEVELOPMENT SHEET No _____

POSSIBLE AREAS TO BE DEVELOPED

JOINTS AND FIXINGS - USE OF ADHESIVES - ADD HEALTH AND SAFETY DETAIL - SELECT MATERIALS AND WHY? - ELECTRONIC CIRCUITS - COSTING - ENVIRONMENT
- ERGONOMICS - MECHANISMS - ACCESSORIES - FINAL OVERALL SIZE - DESCRIBE FEATURES/FUNCTIONS - ADD COMMENT FROM CLIENT/POTENTIAL CUSTOMERS

DEVELOPMENT SHEET No _____

HAND MADE VERSION

The DVD storage unit seen below could be manufactured from a natural wood such as pine. Pine cuts and shapes relatively easily and finishes well. Also, it darkens with age. Traditional joints will be used to ensure that it is permanently glued / fixed together. This means that it cannot be disassembled after gluing.

ADVANTAGES:
This type of manufacture means that the furniture is likely to be ready assembled when it arrives in the shops. It will also be very strong and robust. Using a natural wood such as pine will ensure that the final finish will be a quality one.

DISADVANTAGES:
This type of furniture is more expensive than 'flat pack' furniture. It is more difficult to transport as it takes up much more room than a flat pack package.

HOUSING JOINTS

A plain housing joint is suitable for the shelves. Recesses are cut into the sides and each shelf fits tightly in position. Again PVA glue is used to fix the shelves permanently

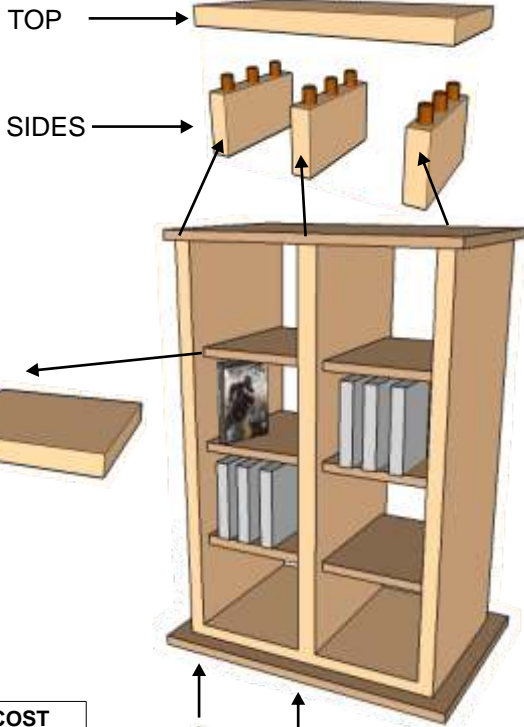
CLIENT/POTENTIAL CUSTOMER COMMENT:
Looks strong and has plenty of storage space. This is exactly what I want.

OVERALL SIZE
800mm x 650mm x 300mm

MATERIAL/PART	DESCRIPTION	COST
PINE BOARDS	1 pack of pine boards, 250mm x 15mm x 1200mm, 5 lengths.	£35.50
DOWELS	1 pack of precut dowels, pack of 100, 8mm dia.	£55.00
STEEL SCREWS	1 box of 5 gauge, 30mm steel countersunk screws.	£2.95
WOOD ADHESIVE	1 litre, fast cure PVA	£4.99

DOWELLED JOINTS

Dowel rod is used as a method of joining the sides to the top. The dowels fit into accurately drilled holes in both the sides and the top and PVA is used as the permanent glue.



Countersunk screws are used to fix the base to the cabinet.

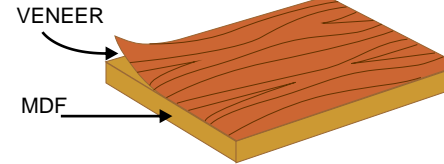
ENVIRONMENT - recycled materials will be used where possible, as well as reclaimed components. Non-toxic finishes and adhesives will be used. Any packaging will have all the appropriate symbols for recycling. Materials will be purchased from sustainable sources, where possible.

PRODUCT: CD/DVD STORAGE CABINET FLAT PACKED VERSION

Flat pack furniture arrives in a cardboard package. When unpacked it has to be put together using tools such as a screwdriver and other simple tools. Usually it is put together by the customer. One advantage of this type of furniture is that it can be disassembled.

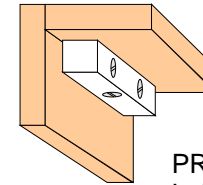
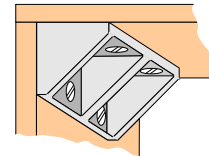
CLIENT/POTENTIAL CUSTOMER COMMENT:
Looks reasonably strong and has plenty of storage space. Although not exactly what I want, it will suit some of my furniture shop customers..

MATERIAL: Veneered MDF
A cheap material such as MDF is given a layer of more expensive natural wood such as mahogany or oak or even pine.



RIGID JOINT: These are normally moulded in plastic which makes them strong. Screws pass through the four holes which hold the sides at each corner firmly together.

PLASTIC CORNER BLOCK (FIXIT BLOCKS): Screws are used to fix the block into position. This type of joint is used to fit modern cabinets such as those found in a typical kitchen. It is a reasonable joint although it has the advantage that it can be dismantled using a screwdriver.

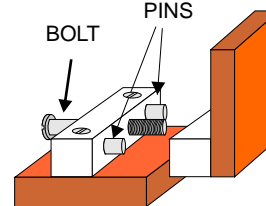


TWO BLOCK FITTING (LOK-JOINTS): These are made from plastic. A bolt passes through the first fitting into the thread of the second. As the bolt is tightened it draws the two fittings together. The pins help keep the fitting straight. This gives a very strong joint and it can be dismantled using a screwdriver.

PREFERRED JOINT / FIXING
Lok Joints - due to strength and ease of use.

OVERALL SIZE
800mm x 650mm x 300mm

MATERIAL/PART	DESCRIPTION	COST
VENEERED MDF	1 pack of MDF, veneered board, 250mm x 15mm x 1200mm, 5 lengths.	£25.50
LOK JOINTS	1 pack of plastic LOK joints, 50 pack.	£10.00
STEEL SCREWS	1 box of 5 gauge, 30mm steel countersunk screws.	£2.95



POSSIBLE AREAS TO BE DEVELOPED

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DEVELOPMENT SHEET No _____

PRODUCT: ROOM SECURITY DEVICE

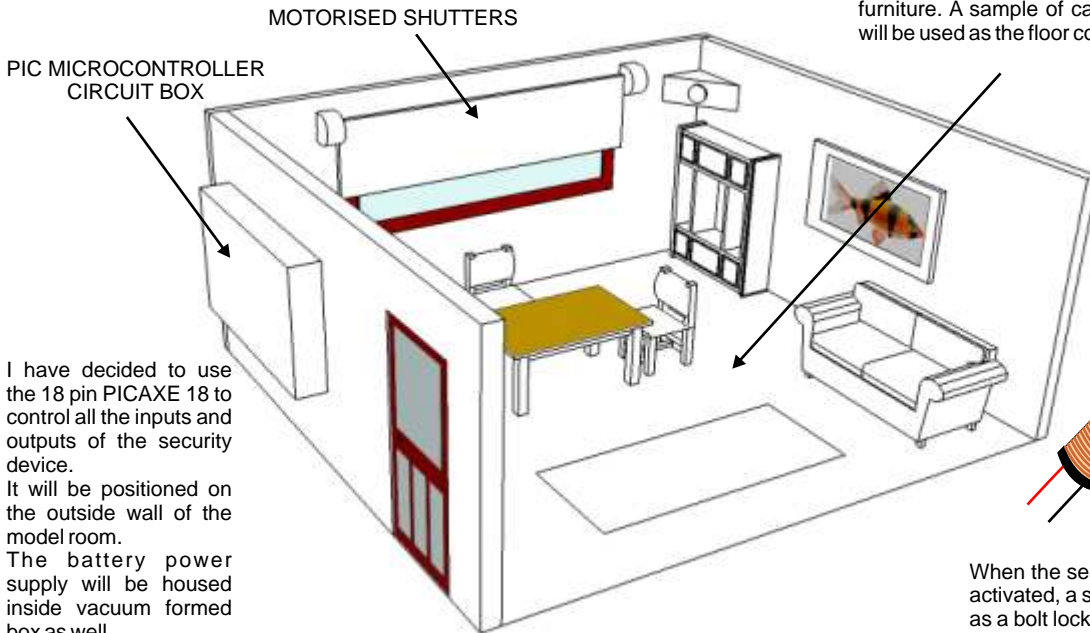
I am developing a security device for a typical living room. The device will be controlled by a programmable circuit, it will operate shutters, an alarm, locking device and flashing lights. Movement will be detected by a sensor.

THE MODEL

The model will be manufactured from a combination of materials including, MDF, textiles material for the shutter, styrofoam for the furniture. A sample of carpet/vinyl will be used as the floor covering.

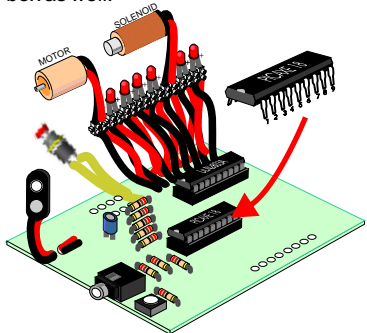
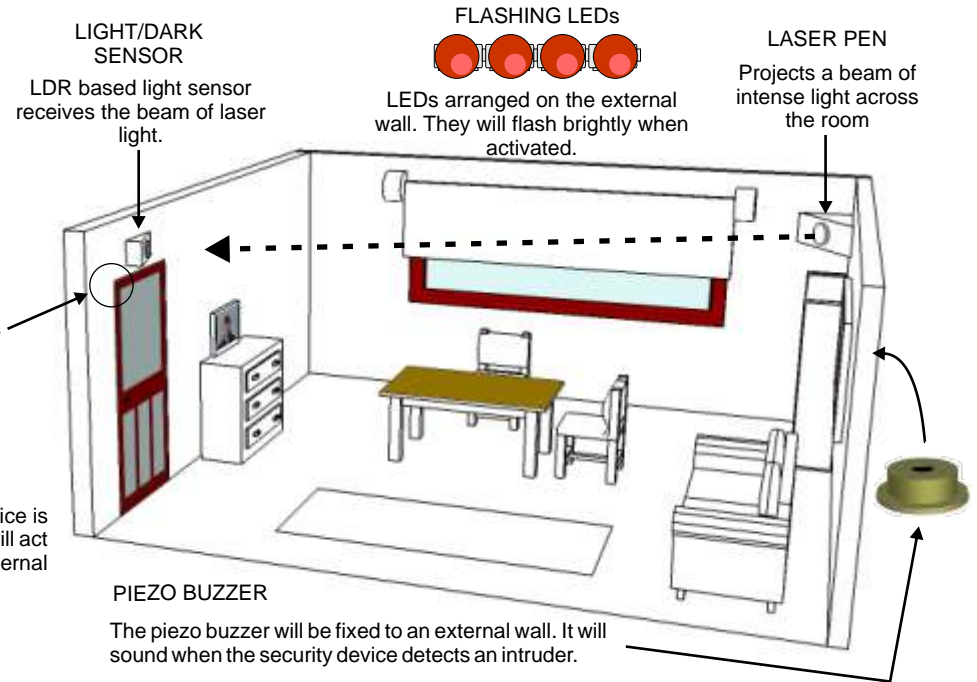
THE ELECTRONICS/CIRCUIT

The security device will have one sensor, based on a laser pen and a light/dark sensor. The laser pen will project a beam of intense light into the light/dark sensor. The PIC will be programmed to detect a break in the beam. If this happens an alarm will sound, the motorised shutters will close, external lights will flash and a solenoid will act as a bolt locking the internal door shut.



I have decided to use the 18 pin PICAXE 18 to control all the inputs and outputs of the security device. It will be positioned on the outside wall of the model room. The battery power supply will be housed inside vacuum formed box as well.

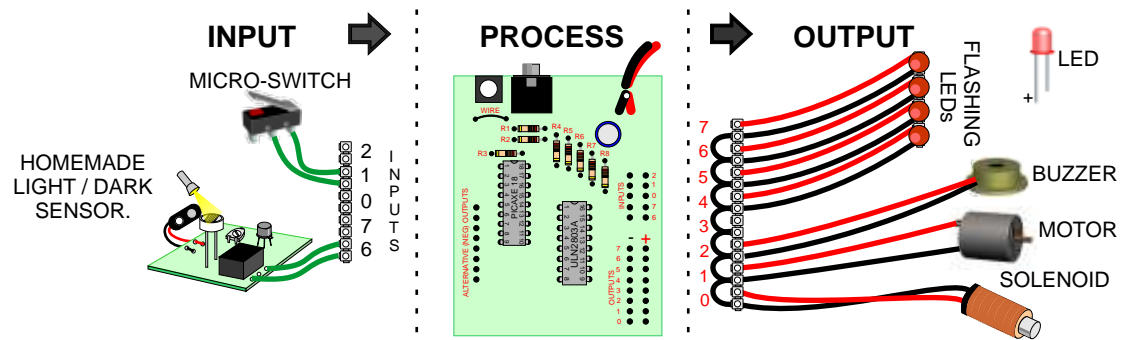
OVERALL SIZE OF MODEL
450mm x 450mm x 300mm



ENVIRONMENT - recycled materials will be used where possible, as well as reclaimed components. Non-toxic finishes and adhesives will be used. Any packaging will have all the appropriate symbols for recycling. Materials will be purchased from sustainable sources, where possible.

MATERIAL/PART	DESCRIPTION	COST
MATERIALS	1 MDF board, Styrofoam, PVA, Vac forming sheets.	£11.50
PIC MICROCONTROLLER COMPONENTS	PICAXE 18 IC, associated resistors etc...	£20.00
SOFTWARE	Logicator software for programming PIC.	FREE DOWNLOAD
SCRAP/RECYCLED MATERIALS	Carpet, wall paper samples.	FREE

When the security device is activated, a solenoid will act as a bolt locking the internal door.



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