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(56) Documents Cited:  
**EP 1504536 A1** EP 1429524 A  
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(54) Abstract Title: **Modular Computing and Communicating Device**

(57) An easily up-gradable modular multi-function device with a touch sensitive screen interface and the ability to run simple computer programs and record and play multimedia material. The base unit has no connection ports other than for a power cable and all programs and media content are accessed through Wi-Fi, Bluetooth or telephone. Each module has an identifying code number to prevent unauthorised copying or distribution of its programs or media data, and to verify the users right to services provided by service providers. The device can be configured as a 2 or 4 piece device, where one piece may be a cover. The unit can open in one of two ways "wide" or "long", via a combination of two independent mechanisms - two hinges on each opening side, and a ball-and-socket joint between the two opening sides through which the two parts can be electronically linked. A plastic overlay may fit over all or part of a screen.

Figure 1

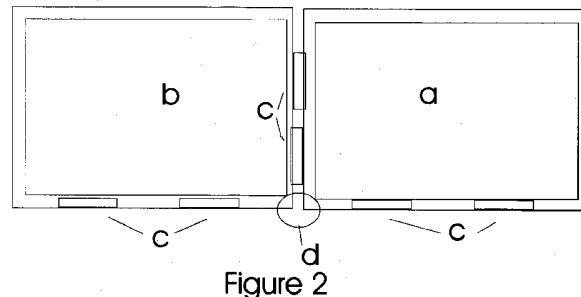
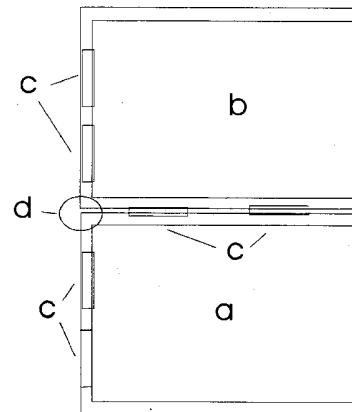


Figure 2

Figure 1

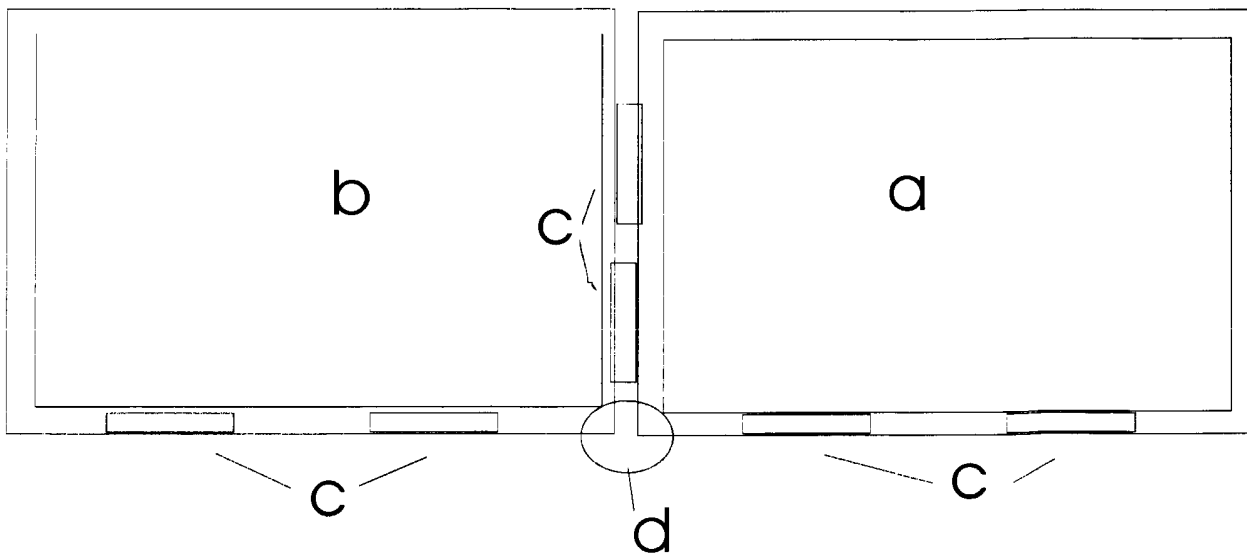
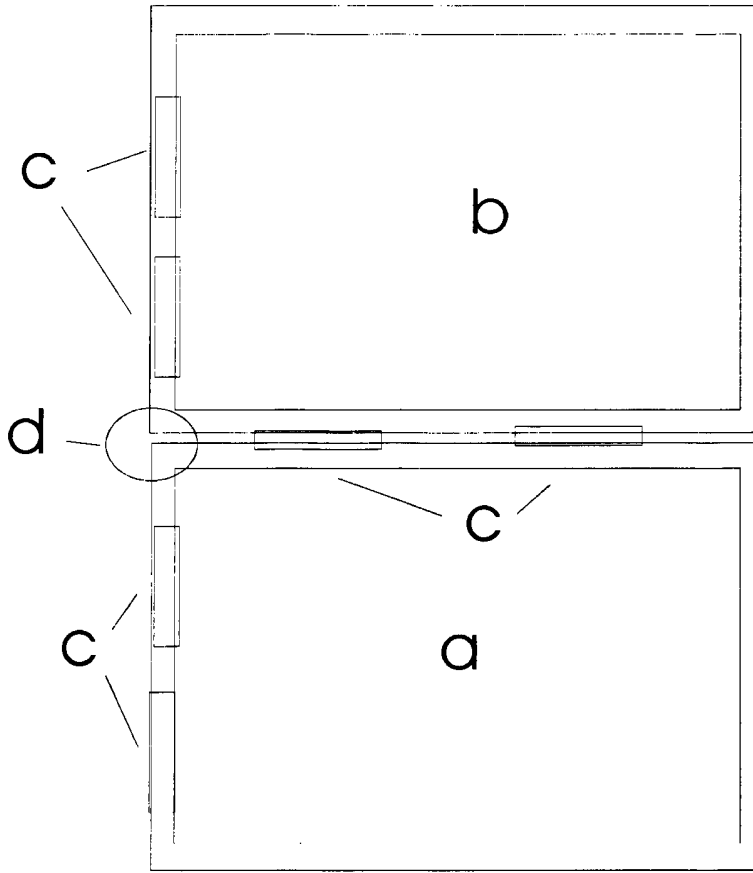


Figure 2

Figure 3

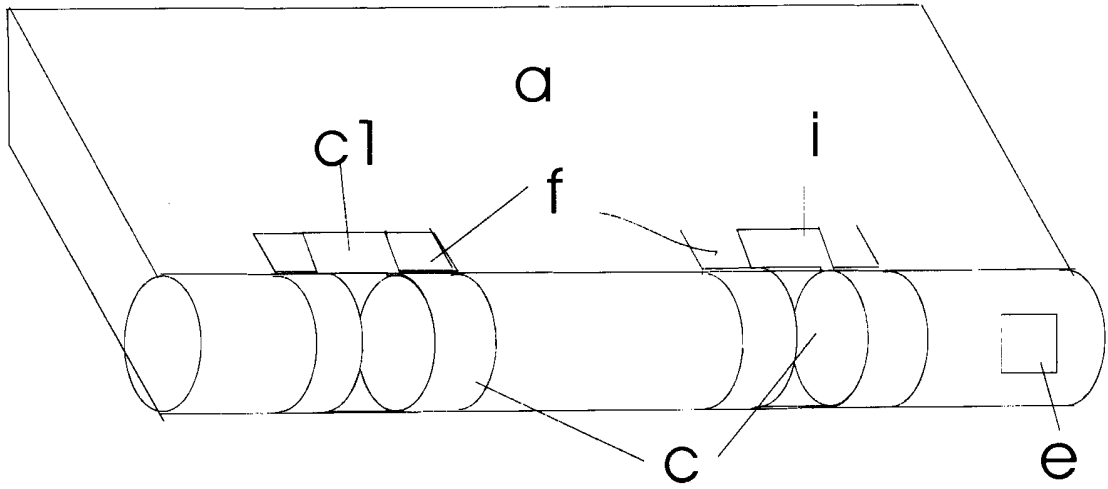


Figure 4

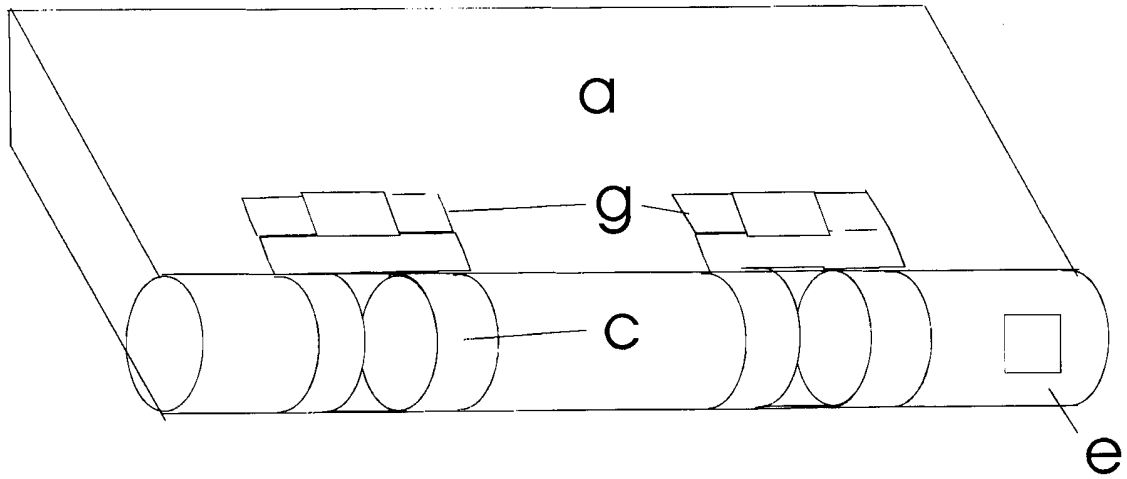
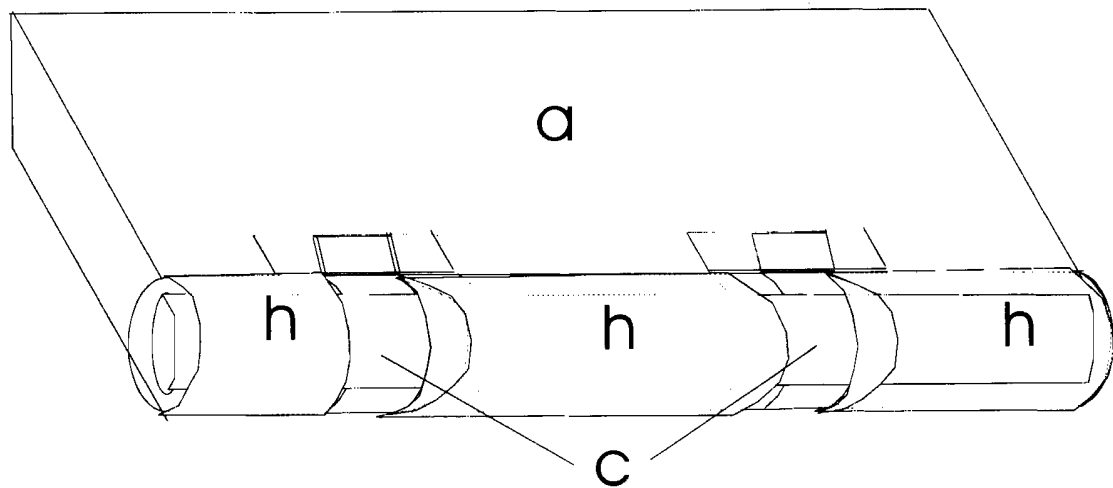


Figure 5



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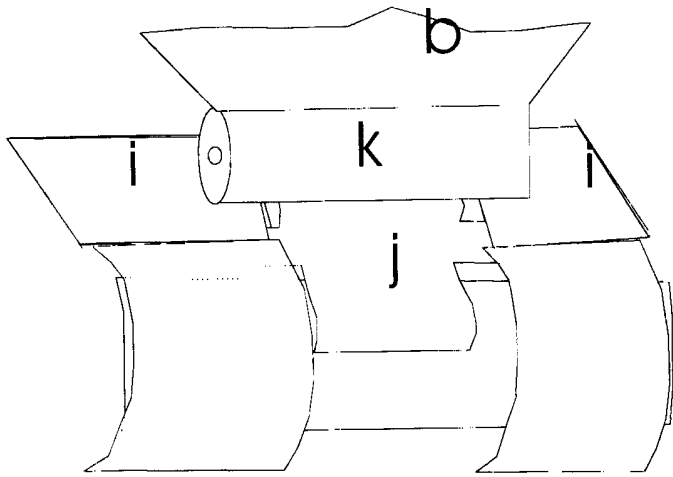


Figure 6

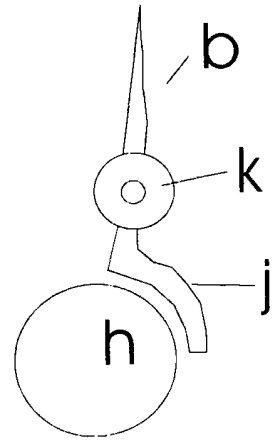


Figure 6a

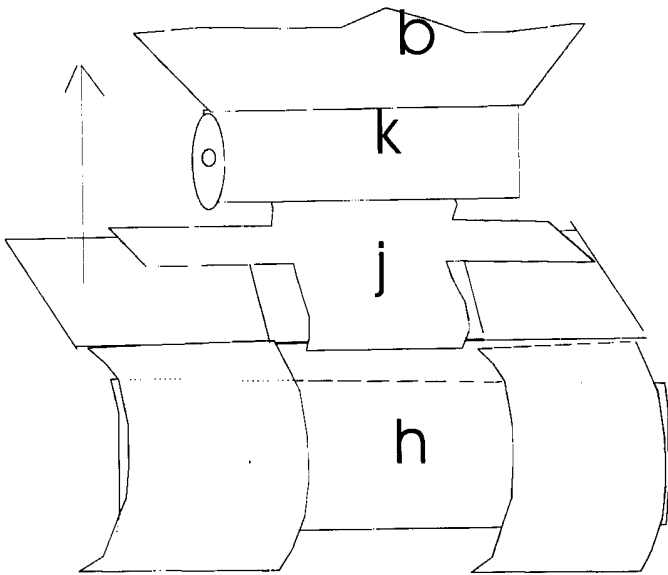


Figure 7

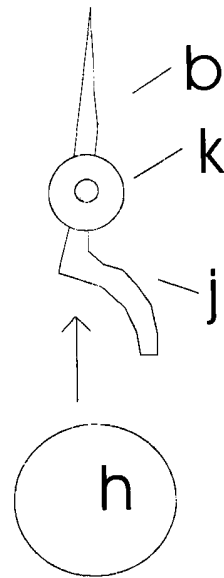


Figure 7a

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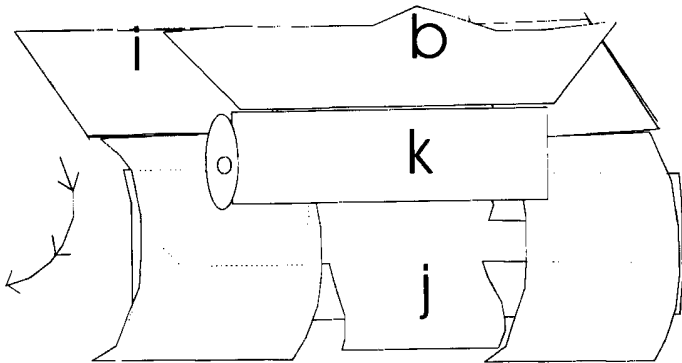


Figure 8

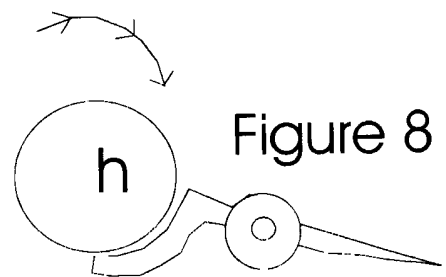


Figure 8 a

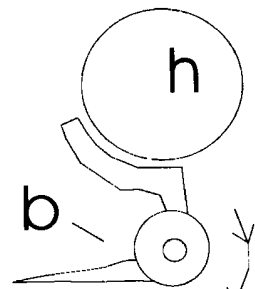


Figure 8 b

Figure 9

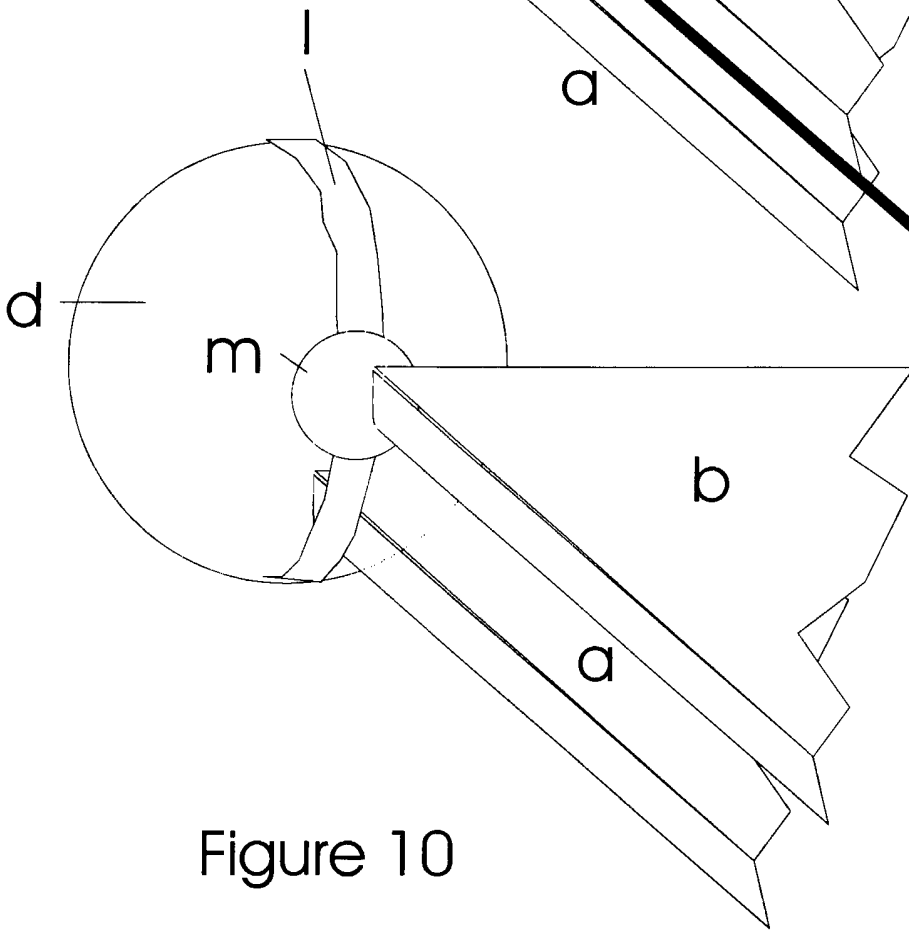
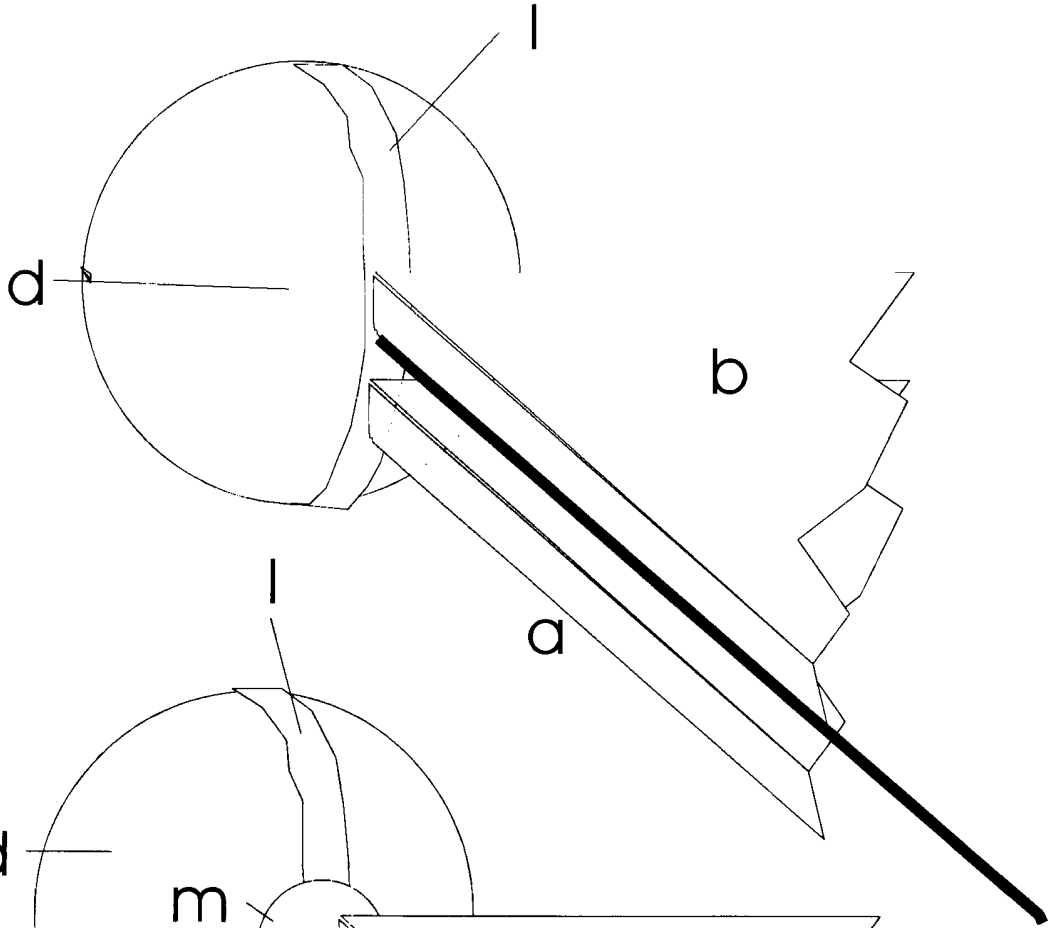


Figure 10

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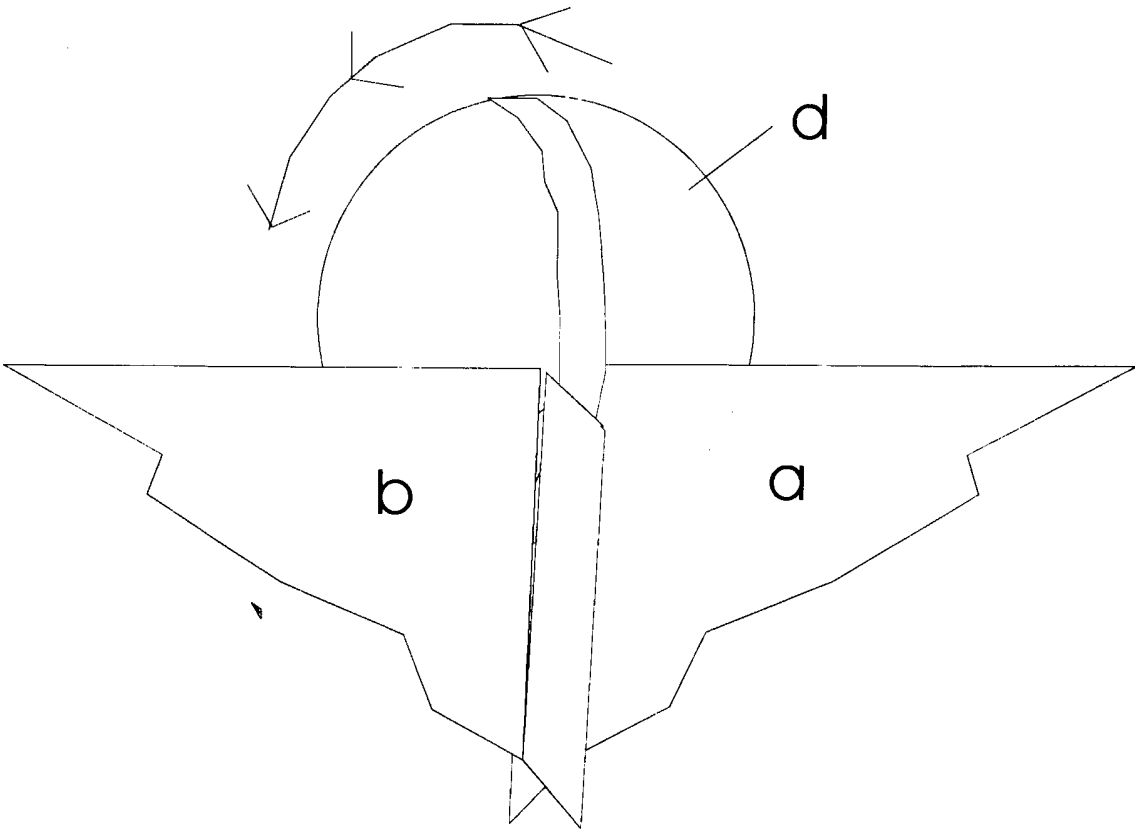


Figure 11

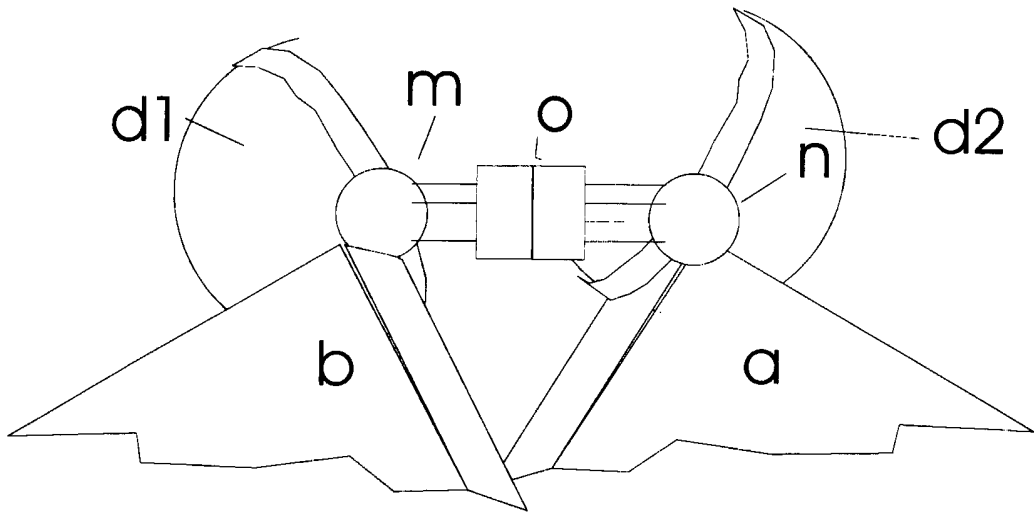


Figure 12

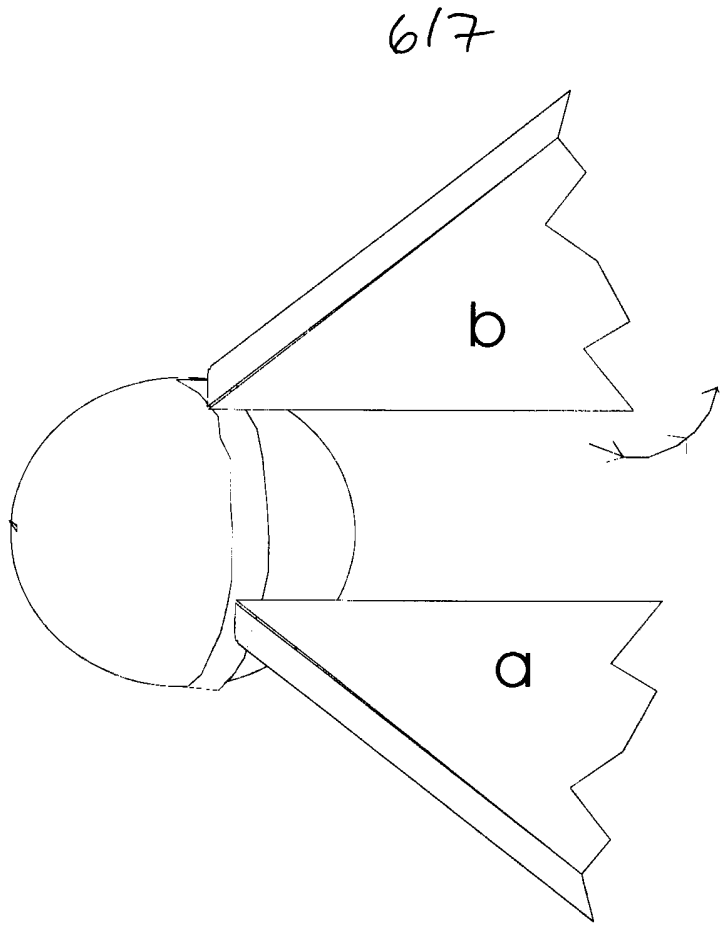


Figure 13

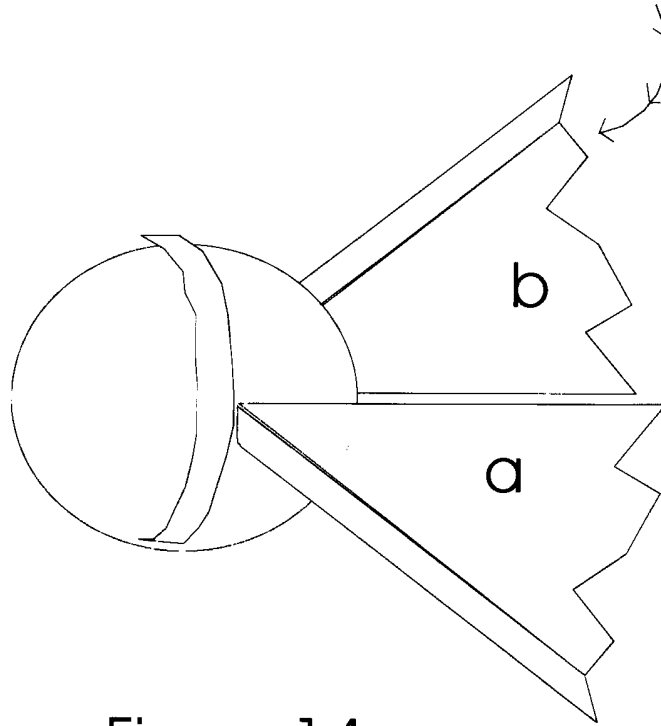
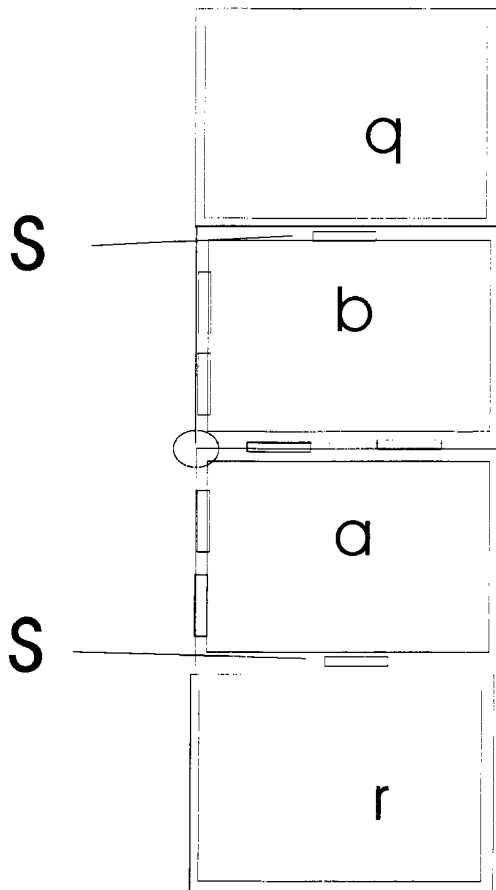


Figure 14

Figure 15



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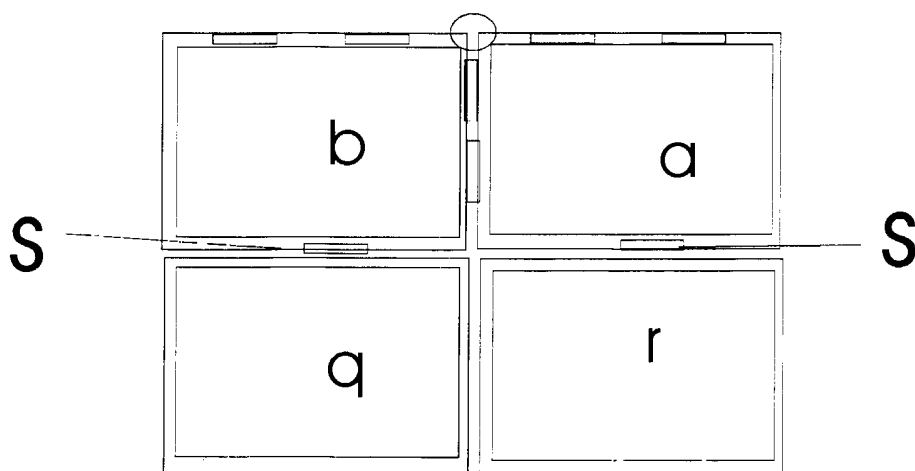


Figure 16



## Low Cost Modular Portable Multi – Function, Multi - Media Electronic Device

### **Background:**

Over the last years many professional and consumer devices have been manufactured and marketed. These include; portable phones, hand-held games devices, portable media players, PDA's, tablet computers, GPS systems, digital audio and video recorders and many custom made professional units, (for recording deliveries and signatures, issuing transport tickets, reading and tracking merchandise etc...).

Although many portable computer, portable telephone and PDA manufacturers are attempting to include the maximum number of functions in their devices, either the material is not fundamentally appropriate for the application, (eg writing e-mails on a telephone or PDA) or are becoming too complicated – many computers do not function correctly because certain programmes are not as compatible as they are supposed to be.

Many of these devices and their software are also too powerful and over specified for the average user's needs. On the other hand most portable devices are also very complicated and expensive to upgrade.

There are also increasing numbers new users of both the older and younger generations for which the present offerings are not optimally adapted.

That there are many new markets and uses for portable devices that are not yet addressed because the appropriate hardware, software and conception do not yet exist.

### **A possible solution:**

To create a simple, basic, easy to use, inexpensive device, with which, all the main functions of the aforementioned devices can be incorporated.

One way to explain the concept would be to imagine a hybrid between a tablet pc, (that is a portable computer without a keyboard where the data interface is the screen itself), a PDA, (Personal Digital Assistant – A small multi-function device that can serve as a telephone, agenda, word processor, that can also be connected to the world wide net and read e-mails.), and a multi-media player, (a player / recorder for photographs, music and videos).

It is clear that in the near future, all portable computers and most portable devices will be able to integrate all the functions listed above – so where will be the specificity of the device to be detailed below?

## **Specifics of the new device:**

The basic elements of the new device will be its low initial cost, large range of inexpensive and consumer upgradable, function specific interchangeable modules, (connected by means of a simple multifunction plug) and its extensive range of periphery devices.

### **Connections and add on modular units:**

The base unit will have no connection ports other than for the power cable, nor will it have a floppy nor cd / dvd drive. All information, programmes and media content will be accessed through; Wifi, Bluetooth or telephone connections.

All data and computer programmes and media will need to be downloaded through one of these connections, which in many cases, (for books, music, films and computer programmes), a licence key, (unique to that unit – see security below), will also need to be transmitted.

All periphery devices; external headphones, speakers, microphones, keyboards – computer and ‘piano’, micc, printers, extra screens, projectors, joysticks and local peer to peer multi user game playing, etc., will be connected through either Bluetooth or Wifi connections.

The design integrates the concept of add on modular units. These would include; dvd drives, portable printer units, multi processors for; business, audio, video and games, beamers, high end speakers and specific units based on individual market needs.

As these devices will be as either two or four part units, (see below), the basic functions will be housed in one part of the two unit device and shared between two of the parts of the four segment design.

The other parts, which initially will serve only as covers to protect the screens of the basic devices, can easily be interchanged with any add-on modular units and simply plugged into the base unit.

However, any other device or a fixed support unit could be directly or indirectly plugged into the base device through this plug or linked through another device linked directly to the base unit.

Devices that might benefit from a direct link might include high quality video cameras, multi track audio mixers or processor intensive calculations.

The plug – in system will integrate; two way electrical power circuits, two way audio and video and multidirectional CPU circuits.

**Security:**

Each unit will be produced with its own unique identifying code number.

This code will serve a number of purposes;

- if the unit gets lost or stolen the first time someone connects to any outside source, it can be located.
- all programmes and media will be key locked to that unit, hence no unauthorised copying or redistribution will be possible
- each unit can be immediately identified by the local networks that have the right to access to that information
- service providers, (telephone, television etc..), can immediately verify the user's right to these services
- goods providers, (supermarkets, internet retails, etc...), can also be secure with whom they are trading. (Use of a thumb-print reader would protect from any abuses)

The data in the units will be partitioned into specific areas, with only certain networks having access to specific areas and for all sensitive or personal data to be protected by pass-words or thumb print verification.

As with the PDA's the operating system will be fixed at the time of production and not be easily up - gradable, added to that, the content downloaded from the internet, e-mails etc., will be limited so as not to be able to integrate itself into the functioning of the system.

As all application programmes can only be added from local known sources, these 'libraries', will be secure and programmes can not begin to function without the agreement of the user.

As mentioned above units might also include a thumb-print reader as a security measure.

**Secure Bluetooth System:**

**Proximity registration:**

The danger of other geographically close users 'cavesdropping' or being troubled by interference with the Bluetooth signals will be overcome through the use of 'contact registration' – The other device that is to interact with the unit is brought into close proximity approximately 5 cm, with that unit. The unit then emits a very limited signal, which identifies it to that device and visa-versa. (The 'Bluetooth network' only includes devices that have been linked in this fashion). From there on, various protocols can be set up to guarantee privacy.

**Range limit:**

The sending and receiving range of the slave Bluetooth device will be automatically limited to its actual distance from the master device by a simple 'echo' system. When the unit is registered an internal clock will be synchronised and several times a second signals will be sent out by the units. As the units are programmed to expect the signal to be sent at specific times, they can calculate the exact distance of the other unit and adjust the strength of their data signals accordingly.

The signal limit can be regulated by the user depending on the circumstances of the moment; A lecturer using a wand-mouse-pointer might choose an unlimited range, someone using a hands-free microphone and a fixed Dictaphone unit in a private office might allow a two metre extra range so that he can walk around without danger of any data loss, where-as a commuter in a train would keep their hands-free telephone unit at the minimum possible range.

### **Usual computer functions:**

This unit is not intended as a replacement, (in itself) for a standard computer. Both the operating system and the CPU, (central processing unit), would be inadequate to compete with a modern portable computer.

As with many PDA's today, it would include a basic but functional word processor, spread sheet and data base amongst other 'included' programmes.

However, through its Wifi capabilities it can serve as a 'dumb terminal', acting as a fully functional interface with a base unit, which itself would have all the capacities desired and expected of a powerful multi-functional computer. If, however, one would wish to gain all the functionality of a powerful portable computer, an add on module containing one or several extra processors, hard disk drive and independent battery power pack could be purchased. (This module would be of course much less expensive than a comparable portable computer of similar capacities and would be cheaper and easier to upgrade through the simple plug – in system mentioned above.)

As also mentioned above, the unit would integrate fully with external mice, keyboards, additional screens, printers etc., through either Bluetooth or Wifi connections - (However, these devices would all have to function through a standard device driver, as opposed to the device supplying its own driver!)

The integration of the unit into various networks at different times is of major importance to the concept of this unit, be it professional, academic, commercial, cultural, social or recreational.

**Target Populations:**

Unlike current computers, portable computers, media players and games consoles, which are aimed at the business, (25 -50), academic (16 – 25) and games (8 – 25) markets, this unit has a much greater scope of applications.

**Early learning and pre – school:**

The large, colour, touch screen would be quite accessible to children from as young as one year old. (There exist already products that could very easily be transferred to such a platform). Learning to write, both numbers and letters would be an exercise ideally suited to the touch screen format. The three dimensional overlay system could also be of interest here.

**School and higher education:**

There already exist many computer programmes that cater for this population but they are not integrated in any way with the official school system.

This unit will be the main object used throughout the whole of a student's academic life. It will be completely integrated into his educational studies.

All of the year's work assignment can be loaded into the unit, including all books and multimedia content. All home and course work will be written into the unit, (either by manual entry or a standard keyboard or three dimensional overlay).

The older student will have a work space that will include a keyboard as standard. For language classes a headset / microphone will also be available.

Each class will be equipped with a master base unit and a multi monitor station for the teacher. As the children enter the classroom, each individual unit will be automatically recognised by the master base unit and each student's dossier will be incrementally updated. This would include any homework or school related data saved in the unit's 'school folder'.

In addition to transferring the current work recently added, the class unit, (itself regularly backed up onto an external facility), protects against the accident loss of a student's unit.

As each unit is automatically linked to the class base unit when entering the room, everything that the student is working on with his unit can also be mirrored on one of the monitors of the monitor station or even displayed on a central screen. (This would of course be used for student presentations).

Working in the other sense, anything that the teacher projects onto the screen could be simultaneously stored in all the units. This could also function as an interactive 'white board' with the teacher and the students being able to 'write' on the screen - with the added possibility of the whole (animated) process being recorded onto the unit for later revision.

**Recreation:**

As this will not be a highly specified computer system, the basic unit will in itself not be powerful enough to run the latest games offerings. However, (as for the full computer functionality), for gaming enthusiasts, a complementary, multi-processor games unit module would add the necessary power.

Playing music and video would however present no problem, and the large disk drive(s) capacity would allow an extensive library to be stored for playing. Also, due to its 'connectivity' properties, content could be played over; in-car stereos, home stereos, home theatres or a neighbour's own unit. (However, illegal copying – re-recording would not be an option, as no media content would be playable without its registration key – which can be transferred but not copied). One other important media item will be books, the publication of 'e-books' will be greatly re-enforced for the leisure and academic markets.

Due to the incorporated Wifi and Bluetooth systems, piloting remote control vehicles, (cars, boats, planes etc.), possibly with integrated video cameras, would be a possibility. – As would be remote controlled sports and battle games.

**Business:**

There is already a tendency in a number of enterprises for the employees to be very mobile, working at several sites and even in their regular office to pick a vacant desk, plug in their portable computer and work from there.

The use of this unit fits totally into this work model. Although in this case each work station would include a keyboard and maybe a large screen and the unit would cease to function as an independent unit but rather as a terminal, accessing all the resources of a main computer network.

(As stated above, in the cases where portable computing power is needed, an add-on 'co-processor' module would be available).

Of course all important documents, information etc., would be automatically updated every time that the employee would be in contact with a company network.

**Multi – media information exchange:** This system is also ideally suited for complex exchanges of views and data between groups of individuals, working from different sites or offices in large sites. By adding on several additional screens, group telephonic- video conferences can be set up, data can be simultaneously sent, presentations can be made and through the multi-access 'white-board' function, several people can even write and edit each others ideas while talking.

- The same functions would of course also be available for normal (face to face), presentations although one would more than likely also use a 'beamer' and external speakers.

### **Home and Family:**

**Shopping:** Internet shopping is now a standard way to make purchases, however, it is often preferable, even necessary to go to shop itself to buy certain items.

**Supermarket shopping:** Using usual internet systems, the shopper puts together their shopping list /order. As they arrive in the supermarket, the local system reads the order and automatically confirms the availability of the items in stock. Simultaneously, any items not in stock are signalled with a list of alternatives, also special offers, either linked to the items selected or not can be suggested, also, other items purchased in the past are suggested. The shopper then decides on their definitive order and the order is sent off to be made up. This would leave the shopper the time to choose themselves their fresh meat, fish, vegetables and fruits and to 'shop' around to see if anything might attract their desires. When they reach the checkout their order would await them, already totalled up, the new purchases would be added on and the whole order could be paid for using their unit as a secure means of payment.

**General Shopping:** The shopper selects an item that interests them. They then place the items tab close to their unit, the proximity reader then scans the item's code. From there, the shopper can then read; technical data of the item, responses to standard questions (automatic response) and non standard questions (personal assistant), reviews, stock details, (quantity available, sizes, colours, configurations .... ). The shopper can then order the items either to; try on - arriving directly to the booth or trying on section, to test – a functional model is made available or to buy – the item is ready to be collected or delivered.

**House:** The owner can send a message to; turn on the cooker, the lights, the heating, feed the animals etc.. Parents can also confirm the presence of their children, as their units would be registered as being in the house. **Security -** One could also install home security cameras, door and window security contacts etc..

**Car:** The owner can switch on the car's interior and engine heaters several minutes before they arrive.

### **Other specific applications:**

#### **Architects, civil engineers and estate agents:**

Through the use of a series of multi directional measuring devices, which could measure distances, directions and altitudes between each other and any other fixed point. (Based on a system of discrete or relative, altimeters and GPS systems). These could also be linked to a specialised camera system for mapping buildings and terrain.

**Private and Professional Drivers:**

The basic driving package includes route maps and up to the minute traffic information. The comfort package would include car and engine pre-warm features, individual integrated head-rest speakers and microphones for adjustable music volume and hands free telephoning and an adapted in-car media centre.

A security system could control all doors, (verifying and controlling their locking and opening) and the blocking or releasing the use of the motor.

With the professional vehicle driving package, professional drivers,(and their employers) would have an accurate record of the exact route, driving times, distance and speed of their journey.

**Traffic Wardens:**

With a precision GPS system a legal or illegal parking space can specified, the time and the position noted. The warden would download information on vehicles parked on the road, (the driver will not have to pay in advance, only register the car in that area and authorise a direct payment), and confirm that registration and payment authorisations are in order.

A new system of registration could be instigated, where the details of the owner of the vehicle and those of the insurer would be stuck onto the windscreen or read from an id code. With this information the warden can check for non-insured cars or stolen cars.

If there seems a problem with the parking, the owner can be contacted directly to check why everything is not order.

If there is a problem with the vehicle not being parking as or where it should, a 'secure camera' could photograph the situation – a copy of the photograph, the time and the place would be automatically uploaded to a site which could be accessed if need be in case of litigation.

**Police:**

The police would have the means for "Secure Data, Audio and Video Capture, (Recording)". The modality of this would be based on the dual concepts of; recordings not being in any way editable or correctable and the continual recording, both of the time and the position, (through GPS) throughout the duty hours of the officer, which would be 'watermarked' on all types of data entered.

As with the traffic wardens, all reports would automatically be copied to a secure site but where the people implicated have the means, a copy would also be transferred to their unit.

Any form of cross interrogation would be filmed by the police but the suspect can insist on their own recording on their own unit if they should wish.



**Artists, designers and architects:**

Due to the fact that the screen is touch sensitive, artists and designers can work directly on the screen. The other advantages of using this system are that one can zoom in for fine detail work and yet, by adding another screen keep an overview on the whole image. There would also be the option to use a larger size unit – an A3 format.

People working on projects in three dimensions would greatly benefit from the multi-screen approach, as they can immediately see the effect of an addition or change from all angles simultaneously.

**Private event recordings:**

Photographs and video films:

Using a high definition still or video camera linked to a unit, they would be able to capture, review and edit their pictures / films immediately. With an added photo printer or disk burner / recorder one could even imagine creating photo albums or video disks for the end of an event, a marriage, for example. Also, the photographer can transfer the photos or videos to people's own units, to store or print or burn as they wish.

**Public events:**

**General:** When watching an event, be it music, theatre, opera, film, sportive or otherwise there are many situations when the experience is limited through some reason or other. For instance; during a pop concert the public is often very far away from the performers and the only way to see any details are the big screens, (when they exist), hence, one cannot choose what they see, or watch a performer playing their instrument more closely during a classical concert, for some theatre pieces the sound amplification is not always strong enough, operas are not always translated or the text passes too quickly in places, (foreign) films are not dubbed or sub-titled as one might wish and with sports events, it is rare that one is able to see all the action that one would wish to.

By transmitting, simultaneously different views, sound and other information, via the unit, the audience could greatly improve their experience.

This information could be made only available for the duration of the event or the person could have the right to record it as their own version to review at a later date.

**Music recordings:** The best system would be to have a unit for each singer and instrument, hence giving the producer full control of the mixing / re mixing of the concert.

However, for simplicity, or if one wished for immediate distribution of the concert, at the end of the evening recording the premixed track would have to be sufficient, a disk burner would allow for disk sales, as would the direct, simultaneous transferring to other people's units, (see above). Nb. In this case, the organiser of the concert would apply for a 'key' for the music of the concert which they would sell with the copy. – 'Bootlegging' (illegal recording of concerts or events), would be difficult to overcome hence pricing the legal transfer copy low would make the activity less interesting.

In both cases a hard disk / coprocessor module might also prove useful as would a dedicated mixing desk.

**Video Film Makers**

As with the event photographers' one would use a high-end camera to store the video on a unit, however, one would expect a film maker to often use several cameras together for the same shot. In this case each camera would be linked to its own unit. During a pause in the shooting all the units can be linked and placed together and the director can view all the shots / angles at the same time, (using the individual screens). From there he can make a rough cut and can also see which shots haven't worked and organise for them to be immediately re-shot.

For a 'small' film where the director is also the editor or where the editing can take place immediately, by adding an extra hard disk and multi processor unit, a mixing module and some large screens the film can be edited immediately.

**Audio and Video DJs:**

To have all one's recordings and clips always available means that a DJ can be very mobile. All external amplifiers, speakers would be compatible hence setting up would be immediate. A dedicated DJ, mixer, effects module would be useful.

**Doctors and therapists:**

A medical pack including prescriptions, sick notes, billing etc could be made available. The exact length of the consultation would be recorded and billed for. All prescriptions and sick notes will be printed through the unit, hence providing an immediate reference copy. If desired, the prescription could be transmitted directly to the chemist / pharmacy and the sick note to human resources department at the patient's workplace.

Of course reference books, current medications, ICM, DSM, etc might also be installed.

**Precision on the exact form and colour of the unit:**

As the unit is aimed at many different markets, the form and colour will need to be adapted to each sector.

A unit for the young child will need to be very robust and in bright colours.

Units for school age children and adolescents would benefit from interchangeable covers.

A unit for a house-wife, might be housed in an A5, clamshell format

A businessman might have several units, a standard A4 tablet and a 4 segment, folding, pocket unit.

Artists and designers, (as mentioned above), might benefit from an A3 format

**Plastic overlays**

An interesting addition would be to create plastic overlays, either transparent or printed to fit over all or part of a screen. These overlays would be formed into various shapes, the most obvious being that of a keyboard, which is to say, that by adding the overlay, the user could type as if he was typing on a 'real' keyboard. This, of course could also double as a Braille keyboard. For the very young, one could also imagine simple shapes, or a group of maybe six 'squares' which would display a choice of answers based on various questions.

## **A simple embodiment of the invention**

The standard configuration of the invention will now be described with reference to the accompanying drawings in which:

Figure 1 shows a standard view of a unit opened along its length, (wide format)

Figure 2 shows a standard view of a unit opened along its width, (long format)

Figure 3 shows a detailed view of an opening side, (either along the length or width), in the position 'closed'.

Figure 4 shows a detailed view of an opening side, (either along the length or width), in the position 'open'.

Figure 5 shows a see through, detailed view of an opening side, (either along the length or width), allowing the inner cylinder to be visible.

Figure 6 shows a detail of the 'hook' / hinge assembly in the position 'closed'.

Figure 6a shows a side view of the detail of the 'hook' / hinge assembly in the position 'closed'.

Figure 7 shows a detail of the 'hook' / hinge assembly in the position 'open', with the assembly being lifted out of the base.

Figure 7a shows a side view of the detail of the 'hook' / hinge assembly in the position 'open', with the assembly being lifted out of the base.

Figure 8 shows a detail of the 'hook' / hinge assembly in the position 'closed', with the assembly being folded out from the base.

Figure 8a shows a side view detail of the 'hook' / hinge assembly in the position 'closed', with the assembly being folded out from the base.

Figure 8b shows a side view detail of the 'hook' / hinge assembly in the position 'closed', with the assembly being folded out from the base and cover piece folded back through the hinge.

Figure 9 shows a detail of the base and cover joined via a type of ball-and-socket joint, (position closed)

Figure 10 shows see-through view of the detail of the base and cover joined via a type of ball-and-socket joint, (position closed)

Figure 11 shows a detail of the base and cover joined via a type of ball-and-socket joint, (position open – long format).

Figure 12 shows the ball-socket joint open, displaying the socket that links the two sections electronically. – Through this socket the different modules can be interchanged).

Figure 13 shows a detail of the base and cover joined via a type of ball-and-socket joint, (position opening – wide format).

Figure 14 shows a detail of the base and cover joined via a type of ball-and-socket joint, (position open - wide format).

Figure 15 shows an open 4 segment arrangement (long format)

Figure 16 shows an open 4 segment arrangement (wide format)

The unit would be either configured as 2 or 4 piece. When not in use, the base unit 'a', (see Figure 1) would be covered by a cover 'b'. The cover 'b', could simply be a metal cover, or it could house any one of a number of 'modules'. (see above).

Unit 'a' houses the touch screen, hard-drives, CPU, Wifi and Bluetooth devices etc..

The unit will be able to be opened in one of two ways, either 'wide' (see Figure 1) or 'long', (see Figure 2).

The means of opening the cover in these two ways is through a combination of two independent mechanisms. The first is a series of 'hinge / joints' 'c', two to each opening side. The second mechanism is a ball-and-socket joint 'd', between the two opening side through which the two parts can be electronically linked.

The joints 'c', (see Figure 3) include a groove 'c1' and 'sleeve' 'i'. Into this joint sits the hinge, (see Figures 6 and 6a), which is free to turn around an inner cylinder 'h', (see Figures 5, 8 and 8a).

To open the unit, the user presses on a button 'e', this then releases the catches 'f', (Figure 3) and opens 'g', (Figure 4). From there, the two hinges can be released, see (Figures 7 and 7a). These hinges are connected at the top to the cover 'b'. Hence, the side of the cover where the user has pressed button 'e' has been released, leaving an adjacent side where the hinges are still attached, which then can be rotated around the cylinder 'h' and or opened using the pivot 'k', see (Figures 8, 8a and 8b).

At the same time, sides 'a' and 'b' are linked through the ball-and-socket sphere 'd'. Which pivot by way of the mini spheres 'm' and when necessary, along the grove 'l'. (see Figures 9 and 10).

Figure 11 shows the two sides opening as in Figure 2.

Figures 12 and 13 show the two sides opening as in Figure 1.

## 13

To change the module 'b', both buttons 'c' need to be pressed, thus releasing both sides of the cover 'b' and allowing the sphere 'd' to be opened. (See d1 and d2, Figure 12), the connector 'o' can then be unconnected and a new module plugged in.

Figures 15 and 16 show the two configurations for a four segment unit. The two extra modules 'q' and 'r' are fixed to 'a' and 'b' by standard tablet pivoting hinges 's'.

**Claims:**

1. An inexpensive, easily and cheaply up-gradable, modular multi-function device, with a touch sensitive screen interface, Wifi, Bluetooth and telephone connectivity, a hard disk drive, a fixed operating system, a unique individual identifying code, the ability to run simple computer programs and record and play multi-media material.
2. A device as described in claim 1 where the cover can be replaced by the general user for different plug-in modules.
3. A device as described in claim 1 that can be opened in either a wide format or a long format.
4. A device as described in claim 1 that can be manufactured either in two sections or four sections.
5. A device as described in claim 1 that can be connected remotely to different peripherals; including; external headphones, speakers, microphones, keyboards – computer and ‘piano’, mice, printers, extra screens, projectors, joysticks and local peer to peer multi user game playing,
6. A device as described in claim 1 with a very simple interface capable of being used by people of all ages with all levels of competence.
7. A device as described in claim 1 where the operating system and basic programs are not easily accessible to be changed.
8. A device as described in claim 1 which can be automatically accessed by different networks at different times depending on rights given to them.
9. A device as described in claim 1 where all data is controlled before being given access to the system
10. A device as described in claim 1 that can be used as the central object for a student’s academic life, integrating fully with the institution’s information network.
11. A device as described in claim 1 that can be used as the central object for a collaborator’s professional life, integrating fully with the institution’s information network.
12. A device as described in claim 1 that can integrate a video camera.
13. A device as described in claim 1 that can integrate a thumb-print reader.
14. A device as described in claim 1 that can be used by traffic wardens and police by integrating a GPS device and a secure recording system.
15. A device as described in claim 1 that can be used by private and professional drivers by incorporating a GPS device, a secure recoding system, vehicle security and a remote car and engine warming system.

16. A device as described in claim 1 that can incorporate a system of 'Bluetooth contact registration', where local codes and other devices are linked to the unit by first passing in close proximity to it.
17. A device as described in claim 1 that can be used as an early learning tool for young children.
18. A device as described in claim 1 that can be used as a computer games platform by adding a multi processor module
19. A device as described in claim 1 that can that can be used as an audio or video mixer by adding a multi processor and extra hard disk module.
20. A device as described in claim 1 that can be linked with any number of other similar devices in the present locality.
21. A device as described in claim 1 that can be used to pilot remote control devices.
22. A device as described in claim 1 that can be used as a base for video conferencing and data exchange.
23. A device as described in claim 1 that can be used as a general shopping aid.
24. A device as described in claim 1 that can be used to remotely control electronic functions in one's house or office.
25. A device as described in claim 1 that can be used by architects, civil engineers and estate agents to measure distances, directions and altitudes between each other and any other fixed point, using linked multi directional measuring devices and cameras, (altimeter and GPS based)
26. A device as described in claim 1 that can be used by artists, designers and architects using one or more screens, up to A3 size.
27. A device as described in claim 1 that can be as the basis for recording audio and video events.
28. A device as described in claim 1 that can be adapted to be used by many professions, including delivery men, stock control, ticket distributors, doctors and therapists etc.
29. A device as described in claim 1 that can be produced in a variety of materials, colours, shapes and sizes, linked to the needs and desires of the manufacturers and public.
30. A device as described in claim 1 that can have a variety of plastic overlays available to place over the screen and give a three dimensional surface to press onto

31. A device as described in claim 1 where different plug-in module devices or a fixed support unit could be directly or indirectly plugged into the base device through the plug connection or linked through another device linked directly to the base unit.

32. A device as described in claim 1 that can include a Bluetooth connection of variable signal strength based on a feedback system with other Bluetooth devices.



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**Application No:** GB0712564.4

**Examiner:** Dr Mark Shawcross

**Claims searched:** -

**Date of search:** 16 October 2008

**Patents Act 1977: Search Report under Section 17**

**Documents considered to be relevant:**

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X	-	EP 1504536 A1 (MOTOROLA) See page 5 lines 19 to page 6 line 3, page 7 lines 5-12 & figures 14-19
X	-	EP 1429524 A (SONY) See paragraphs [0014-017] & figures 14-22
X	-	WO 2005/020046 A1 (KANAI et al.) See abstract & figures
A,E.&	-	US 2007/0164923 A1 (KANAI et al.) See paragraphs [0012-0058] & figures
X	-	US 6628244 B1 (HIROSAWA et al.) See summary of invention, col.9 lines 55-58 and figures 4-6, 12-13 & 18A-G
X	-	US2006/0274058 A1 (HAN) See paragraphs [0042-0060] & figures 2-4
X	-	JP 2001024760 A (MATSUSHITA) See EPO & WPI abstracts & figures
X	-	JP 08044672 A1 (HITACHI) See EPO & WPI abstracts & figures

**Categories:**

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

**Field of Search:**

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC<sup>X</sup>:

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G4A

Worldwide search of patent documents classified in the following areas of the IPC

G06F

The following online and other databases have been used in the preparation of this search report

Online: EPODOC, WPI

**International Classification:**

<b>Subclass</b>	<b>Subgroup</b>	<b>Valid From</b>
G06F	0001/16	01/01/2006