

Introduction

There have been a number of burglaries in the area in which the Peterson family are living; thus they have become increasingly interested in Control Technology in their home.

They have contacted me, and my task is to prepare a report, which advises them upon various alarm systems, also considering fire detection systems.

I am going to provide the Peterson's with two reports, one outlining a basic security system for the family, and the other a more advanced top of the range system. This will give the family the necessary information to decide which system would suit their needs the most as well as being within their price range.

In the reports I shall inform them in detail what should go into the system, prices, and the best places to install the various components in their home.

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Sensors

Many different types of sensors could be used for various security and fire systems. There are sensors that detect movement, or a change in light, or temperature. Below is a list of some that could be used.

Mercury Tilt Switch – This is placed inside a device, and if that device is moved or tilted in any way it causes a blob of mercury to complete a circuit by touching contacts. This is often used in vending machines, or machines that contain money or goods that might cause people to tilt the machine to attempt to get the

goods out. In the Peterson's home this type of sensor could be used on doors or windows to detect whether they are opened.

Light Sensor – This is a sensor that can detect a change in lighting levels. These types of sensors are often used with streetlights, and detect when it is dark enough for the streetlights to be turned on. This could also be used for a security light outside the Peterson's house, which will switch on when it is dark.

Push Sensor – These sensors create a circuit, which can turn on a light. These are often used on car or fridge doors, switching a light on when the door is opened.

Temperature Sensor – A sensor that detects a change in temperature, they are often used to within central heating systems to help in keeping the temperature of a house constant. This could be used to detect a fire, as there will be a rise of temperature in the event of a fire.

Sound Sensor – Used to record the level of sound,

The basic control panel more or less operates the whole system. Usually it would be about the size of an A4 piece of paper, and 2 inches thick. It would need to have a keypad, which would allow a unique PIN to be set so that the alarm system can be switched on and off. It will need to be connected to the sensors and the bell box so that the sensors could send signals when movement was detected, and so that it could send signals to the bell box to activate the alarm. This may result in a lot of unsightly wiring around the house, which could cause problems.

There would only need to be one of these in the house because only one control panel is needed per system. This would be placed in the cupboard under the stairs, so that the alarm system could be accessed easily so it can be switched on and off, as it is fairly close to both the entrance and exits of the house. It also will be hidden from view in the cupboard, so it will not clutter up any other area of the house or be an eye sore.

Infra red movement sensor (4)

These sensors will detect movement in a room when the alarm system is on. They send an infrared beam into the room and when this beam is broken a signal will be sent along a wire to the control panel, which in turn will set off an alarm. They should be placed in key areas, which could be containing important things that the family wants to protect, or leading into areas containing important items. I have decided to place them in 4 rooms, but not areas that the main doors lead into the house, as somebody could come into the house and not have chance to deactivate the alarm system before the alarm is set off. They should be placed away from windows so that they cannot detect movement outside the house and set off the alarm when there isn't an intruder. The areas I am going to place these in are the living room, the dining room, the upstairs landing and the hall. I only placed one upstairs because it is more likely any intruders would enter via a door or window in the lower part of the house, since climbing in through an upstairs window takes longer, and would mean that they would be very visible and more likely to get caught. The PIR on the landing upstairs will immediately detect them should they venture upstairs.

If a family have pets, it is possible that they could actually set off the alarm by the PIRs detecting their movement, so something named a pet guard is available. This only sends the infrared beams above a certain height, so that they cannot detect animals fairly low on the floor.

Alarm box (Self-actuating sounder) (1)

It is essential that an alarm box be placed in the system, as otherwise there will be no alert to possible break-ins. This will also have a flashing light, which will allow it to be seen by people also. If, for example, one of the movement sensors detects a movement inside the house, it will send a signal to the control panel, which will send a signal to the alarm box meaning that the house alarm will be set off.

There only needs to be one, as two might create more noise and attract more attention, but it is unnecessary. This will be placed outside on the front of the roof, above the two top windows of the house. This is because it will then be more likely to be heard by more people in the area when it is activated, and even when the alarm stops the flashing light will be very easily visible.

Magnetic door contact (2)

When a door is either opened or closed, this creates a circuit that will set an alarm off. These would be useful at night so that the family would know when anybody was entering the house, or if an intruder somehow managed to obtain a house key then this would alert the family/people in the area that somebody was entering the house that shouldn't be.

I am going to place these on the two main doors which lead into the house, as they would be no use on any doors inside the house since that would mean that the intruder was already in the house.

Stand by battery

This will be needed in case of a power cut, as if there wasn't a stand by battery then the alarm system would be rendered useless in the event of a power cut since it does depend upon the house having power. If there is a power cut then the stand by battery will be activated meaning that the house will still be protected. This shall be kept in the small cupboard under the stairs, along with the control box, as then it will be out of the way but still accessible if need be.

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Smoke detector (2)

These will detect any smoke in the house and activate an alarm. Smoke alarms are fairly small, and they are usually placed on the ceiling, since smoke rises. Being placed on the ceiling they are fairly discreet and unnoticeable.

I am going to place them on the landing, and in the hall. On the landing because smoke rises, and also if I just placed one downstairs and a fire begins upstairs then the fire would not be detected. In the hall so that fires downstairs can be detected. I chose the hall because it is near enough to the kitchen that a serious fire beginning in there could be detected, but far enough away that simply cooking dinner would not set off an alarm.

The inputs and outputs of the equipment in the system, including pictures

System Equipment	Input To Equipment	Output To Equipment	Picture
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Control Panel	Signals from sensors or button presses	Activation/deactivation of alarm system, signals sent to alarm box	
Movement Sensor	Movement	Signal to control box	
Alarm Box	Signal from control box	Activation or deactivation of siren	
Magnetic Door Contact	Door opens which creates a circuit	Signal to control box which activates siren	
Stand By Battery	Power cut	Activates stand by battery so system can continue running	
Smoke Detector	Smoke	Alarm	

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Advantages of the basic system

• **The system will be easy to set up, and inexpensive, and also will protect the family.**

- As well as being easy to set up, the system is fairly simple for the family to learn how to use, as well as protecting them to a basic level of security that would be enough for most families.
- People will be alerted to both fire and break-ins in the house, and the alarm will definitely deter burglars if they see the box at the front of the house. Also in the event of a burglary, there's more chance of it being stopped due to the sirens.
- The back up battery protects the system against power cuts, so the system will always be working and protecting even in events such as power cuts.
- The magnetic door contacts mean that if an intruder managed to obtain a house key, then the alarm system would still go off if they did not know how to deactivate it.
- Smoke detectors pick up and alert people to any smoke in the house, as smoke means fire. This is an advantage over having no smoke detectors; as if a fire began whilst the family were sleeping then they would be alerted to it hopefully before it got out of hand.

- Since the family would start with a basic system, this could always be upgraded to a more advanced system, which would protect the family to a higher level if they felt it was necessary.

Disadvantages of the basic system

- The system is a basic system, which means that it is more likely that burglars could get past the system than with a more hi-tech security system.
- Having a pet guard on the PIR detectors means that if an intruder were to crawl across the room at the height of an animal then they would not be detected by the PIRs and the alarm would not go off.
- The smoke alarm must be tested regularly to ensure that batteries are still working. If this is not done, and the batteries run out then the families smoke alarm is useless, and fires would not be detected.
- After the alarm has been set off once then the system is deactivated. This means that if a burglar came back to attempt to enter the house again the alarm wouldn't go off and the house could be burgled.
- It is likely that a lot of wires would need to be lain around the house for the system to work, although some of these could be hidden some of them probably wouldn't be able to be hidden, and these could be unsightly.
- The alarm system needs to be activated by different codes, which could be difficult for the family to remember, and if they forget them then they could set off the alarm trying to deactivate the system, or not be able to activate the system at all.
- Most of the equipment in the system doesn't actually prevent fire/break-ins, it just alerts people to them whilst/after they happen. Therefore theft could still happen even with the alarm system installed. The smoke alarm also does nothing whatsoever to prevent fire.

Considerations of installing the basic system

Below is a list of all the things that the family should consider before deciding to install the basic security system.

- Timing to switch the alarm off - When the family enter or exit the house, they don't want the alarm to go off before they have change to deactivate the system, or to get out the back door. Therefore setting entry and exit times is a good idea, so that the alarm doesn't set for say 30 seconds after it is activated, and go off for 30 seconds after somebody entering the house. This will give them time to set or unset the system.
- Sensitivity of sensors - If the sensors are highly sensitive, it may mean that they do pick up things outside, or movements of for example curtains in a room due to the window being open. To combat this it needs to be made sure that the sensor is not set up pointing out of the window, and the family should try to remember to close windows of the rooms that sensors are in before leaving the house.
- Activating and deactivating the system - This can be done either through a password, a code, or a key. The family need to think about which would be easiest for them. A key might seem the easiest, but each member of the family would need one, and they could also be lost or taken by somebody else. Passwords and codes may also be easy to forget which would mean that the system couldn't be used.
- Cost - The family need to make sure that they can afford the initial costs for the system, as it will cost nothing to very little once it is installed. They should plan to purchase a system that will be the best for them, and within their price range.
- Trial runs - All of the equipment should be tested and checked to make sure that it works, as if it didn't it would be useless.

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Advanced Security System

The advanced security system is designed for a family that need a large amount of protection and want a top of the range system. The amount that could be spent on this type of system is almost unlimited. Below are my suggestions for a top of the range security and fire system for the Peterson family.

Discreet control panel (1)

A discreet control panel is like the basic control panel, in that it is the "brain" of the entire system, controlling everything, and it is through this that the family activate and deactivate the system. A discreet control panel is smaller, and it doesn't have a keypad, instead using remote keypads, which I shall explain later, controls the system. Since it doesn't have a keypad there isn't any reason for the family to use it apart from maintenance, which means that it can be put away somewhere such as the loft, if they do not wish for it to be seen.

It will be activated by signals sent to it by the remote keypads, PIR detectors, panic buttons and any other system components connected to it by wires. These will either cause it to activate/deactivate the system, or send a signal to the bellbox to produce a siren.

I am going to place this in the cupboard under the stairs, as I did with the control panel for the basic system, simply because I feel that this is the best place for it. It will be convenient and easy for the installation workers to get to, to install the control panel, and should it break or need servicing it's also easy to get to. It will also need to be connected to the bellbox, PIR sensors, remote keypads etc so that the system works, so there may be wiring around the house, but I feel that placing it here will minimize the wiring, as if it was placed in the attic the wiring would be more obvious exiting the attic and difficult to route downstairs.

Remote keypad (3)

A remote keypad is instead of a keypad on the control panel, making it smaller and more discreet. They are about the same size as a standard calculator. It will be used mostly to activate and to deactivate the alarm system, as it will send signals to the control panel upon buttons presses, which will cause the main control panel to either activate or deactivate the system, or to send a signal to the bellbox to sound an alarm if the wrong code is entered. The keypad is

attached to the control panel by a cable, which can be hidden under carpets etc, and this cable helps it to retain contact with the main control panel.

There can be as many remote keypads as you wish around the house, they are simply to make it more convenient when setting the system, so that you don't always have to go to wherever the control panel is to set the system. They can be placed next to your bed, so that you can set the system before going to sleep and deactivate it before you get out of bed in the mornings, or by the doors so that you can immediately deactivate the system upon entering the house.

The system could also actually be set up so that pressing two certain buttons together on the remote keypad would act as a panic button, and activate the alarm even if the system was not set.

I am going to place three remote keypads in the house, one by the front door and one by the back, so that the system can be set/unset upon entry or exit to the house without having to go to where the main control panel is. Also this means that the entry/exit time could be decreased thus making the house more secure. The other one I shall place on the landing upstairs, so that the system could be partially set before going to bed, or if for example, somebody went out without realising that somebody was still upstairs in the house, that person could quickly deactivate the system before the alarm was set off. Placing just three means that there shouldn't be too much unnecessary wiring around the house connecting the control panel and the remote keypads.

Zones of protection (4)

You can actually set up zones of protection in your house, so that when the alarm goes off, LEDs can indicate which zone the problem was meaning that you know exactly where the intruder entered. Or if for example you are having difficulties with the alarm consistently sounding for no apparent reason then you can find out which zone the alarm is being set off in and discover and fix the problem. Also when you set the system, you can set only certain zones of the house to be protected.

I am going to set up four zones of protection in the house, with the kitchen garage and hall area being zone one, the living room and dining room area being zone two, the bathroom and landing area upstairs is zone three, and the three upstairs bedrooms are zone four. This is so that the things that need to be protected most are grouped in zones, and when only certain zones of the system are set then the family could easily just set the system to protect the two zones which contain the items that most need to be protected inside the house.

Shock sensors on windows (7)

A shock sensor, or vibration detector will actually detect any vibration upon the windows they are placed on, and send a signal to the main control panel to activate an alarm. These are very useful because they attempt to stop anybody actually getting into the house, rather than simply setting off a siren once somebody has already entered. Vibration or movement of the windows activates them, such as that from somebody attempting to smash the window. There is a picture of a shock sensor in the table below.

I am going to place 7 shock sensors on windows throughout the house, on all of the four upstairs windows, and on the kitchen lounge and two upon the large patio windows in the dining room. This is because I feel that shock sensors are very useful since they set off an alarm before entry to the house is gained, and not after somebody is already in. I am not placing shock sensors on the porch windows, or the window of the back door because somebody just knocking on the door could set this off.

PIR detectors (6)

Passive infrared detectors, or movement sensors detect any movement in the room they are placed. An infrared beam is sent into a room, and when this beam

is broken, for example by a person walking across the room, then if the system is activated a signal is sent to the main control panel which then contacts the bellbox and sets off a siren.

These should be placed in areas of the house that contain important items that need protection, or items which would be expensive to replace. They should also be placed in the main areas of the house that an intruder is likely to enter into. They should also be placed so that the infrared beam does not pick up movement through windows, as this could then set off movement outside the house.

I am going to place seven PIR detectors around the house. These will be placed in the hall, lounge and dining room downstairs, but not actually in the kitchen since there are very few objects of importance that could be taken from the kitchen.

Upstairs I shall place PIR detectors on the landing, so that anybody venturing upstairs will immediately be detected, and in each of the three bedrooms so the contents of these rooms are protected, and anybody climbing through the windows in these rooms will be detected.

If a family have pets such as dogs or cats in the house when the alarm system is set then these animals by movement could set the system off. The way that I have placed the sensors, the pets could be in the kitchen while the system is on without setting it off, but if the family wished for their pets to have the run of the entire house then a pet guard is available, which stops the infrared beams below a certain height so animals low on the floor cannot be detected.

Internal alarm sirens (2)

An internal alarm siren is basically a siren that can be set up inside the house, so that when the alarm goes off it can be heard clearly inside the house also. These will be activated by a signal from the control panel to activate an alarm.

They could be necessary if the family sets the alarm system whilst sleeping, so that they could definitely hear the alarm if it went off. Also when an intruder enters and the alarm goes off they may not always hear it, but if an intruder hears an extremely loud siren inside the house this may encourage them to leave.

I am going to place two of these in the house, one in the hall downstairs, and one on the landing upstairs. This will ensure that they can be heard from any area in the house.

Rearm facility

Within alarm systems, once the alarm has been activated it is only allowed to sound for twenty minutes, due to regulations and noise pollution. After this time a light on the bellbox will continue to flash. After the siren has stopped, the system is often deactivated, meaning that if a burglar comes back after twenty minutes, they have already gained entry to the house and will be able to quickly get in and take what they want without the system sounding an alarm because it has been deactivated. However it is possible to have a rearm facility on the system, so that once the system has been activated it will rearm itself, and not be deactivated so that if the burglar does come back the alarm will sound again.

This will be set up within the control panel in the house, as I feel that this would be necessary in case of an intruder actually attempting to enter twice.

Panic/personal attack button (2)

A panic button can be placed anywhere in the house, or the remote keypad can be set up so that when two set buttons on the keypad are pressed together a siren will sound. This will work even when the system is deactivated.

I believe that a panic button would be necessary in the house because when people are in the house it's likely that the alarm system wouldn't be activated, meaning that if there was a break in no alarms would go off, so they could press the panic button to set off a siren so that people in the area would know there was a break in.

I am going to have two panic buttons in the house, one in the hall and one on the upstairs landing. This is so that there is one within easy reach whether you are upstairs or downstairs in the house.

RedCARE

There are a number of options instead of RedCARE, and I have outlined some of these before describing RedCARE.

A speech dialler could be used, which is activated by the system alarm going off. A message can be recorded, for example "10 Oak Street is being burgled," and up to five telephone numbers can be dialled to relay the message to. Mr Peterson could set this up to dial the number of a security company, who upon receiving the message would come to the house. However monitoring station and callout fees would have to be paid. A speech dialler would be connected to a telephone line, which means that it does rely 100% upon the telephone line being open. A speech dialler is less reliable than a digital communicator, which also does rely on a telephone link between the alarm and a commercial monitoring station, but what a digital communicator does is send a signal to an alarm receiving centre, who contact a responsible person (key holder.) The key holder could be a security system that will come and check the house for you; this means that callout fees will have to be paid. A digital communicator also does rely upon the telephone line not being cut, which is where RedCARE comes in, which I will explain next.

A digital communicator is activated by a signal from the control panel, or a siren being set off in the house.

I have decided that a digital communicator is necessary because if there is nobody in the area to hear the siren, the burglar could just take whatever he or she wants and leave, with nobody realising or knowing who it was, but with a security company actually coming to check the house the burglar could be stopped in their tracks.

RedCARE will monitor BT telephone lines that are connected to alarm systems. When an alarm is set off, then a signal is sent via the actual RedCARE network within seconds to the monitoring centre. This monitors 24 hours a day, and if the line is cut then this can be instantly detected. Again, monitoring station fees and callout fees are applicable, but this is much more secure than any of the other options, since it will detect line cuts so the house is certain to have somebody checking it in the event of an alarm going off or a telephone line being cut so that an intruder can attempt to enter without the security company being called.

Heat detector (2)

A heat detector or temperature sensor does a similar task to a smoke alarm. They are commonly a bi-metallic strip. When the temperature rises, this causes the strip to bend, which will meet a contact and create a circuit, and an alarm will sound as a result. As the temperature will always rise in the event of a fire, these are very useful.

I am going to place two of these inside the house, one on the landing and one in the hall. I am placing them here so that they can detect fires both upstairs and downstairs. One should not be placed in the kitchen, since normal cooking temperatures could cause the strip to heat up and set off an alarm.

These should be in the house, as fire protection is extremely important.

Floodlights (1)

Floodlights can be placed outside the house, and activated from a movement outside. These are useful as you can see if anybody is outside the house from whether there is a light, and if there is a light you can clearly see whoever is outside. They are also useful when coming home in the dark, so that you can see where you are going once you enter your back garden where there are no streetlights.

One floodlight should be placed outside the house, above the bathroom window, so that the back garden will be lit up if any movement is detected out there. These will be good for seeing people outside and being able to see outside in the dark yourself, as the light can also be set to not switch off. The lights will only be activated due to movement in the evening and night times, and not during the day when it is light and you do not need a light.

Magnetic door contacts (2)

These are made in two halves, and when a door is opened/closed this will create a circuit as the two halves join together, and an alarm will be set off.

If somebody obtained a house key, then these would be good, as they would set the alarm off since the person entering would not know the security codes for the alarm system.

Also if the family were to set or partially set the system at night then they would be aware if anybody was entering the house while they were sleeping, because an alarm would be set off.

These should be placed on the front and back doors to the house; so that they can detect people entering the house, if they were placed on doors inside the house this would be useless because the intruders are already inside.

These are activated when the door is either opened or closed, depending on which way that they are made, and they send a signal to the control panel, which will activate an alarm.

Perimeter protection

Infrared protection is set up by transmitters, which look a little like posts, placed around the area that you want to protect. Infrared beams being broken activate it. Several beams are transmitted between the posts at different heights, and if all of the beams are broken together an alarm will be sounded. All the beams have to be broken at once so that animals such as cats or birds do not set off the alarms by travelling through the beams and breaking them, as the only thing large enough to break all the beams would be a human.

This will be set up all around the house so that if anybody enters into the area around the house when the perimeter protection is on an alarm will be set off.

This is the only place it could go, since it wouldn't be any use inside the house. It is good at stopping people before they actually get close to the house.

CCTV cameras (2)

A closed circuit television camera can tape everything that is in its view. It can tape all the time, or just be set to tape at certain times. CCTV cameras that sense movement can just tape when they sense a movement.

Cameras can be fitted with the facilities of panning, zooming and tilting; they can also operate in low light.

CCTV can also interact with the alarm systems, it can be connected to the system, and when the alarm is activated the camera will begin to record. They may also relay information to somebody whom would then sound the alarm.

The cameras that I feel would be best for the house are one placed on the back wall of the house that is activated by movement, so it would be able to record anybody in the back garden of the house, and one at the front of the house that will tape at certain times of the day.

CCTV cameras are very good if you want high security, as even if somebody does manage to get into the house you do have them on tape which could aid you in finding out who they are.

The inputs and outputs of the equipment in the advanced system, including pictures

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System Equipment	Input To Equipment	Output To Equipment	Picture
Discreet control panel	Signal from equipment in the system or remote keypad	Signal to bellbox to set alarm off or activating/deactivating system	
Remote keypad	Key presses	Signal to control panel to set/unset system	
Shock sensors	Vibration or a shock	Signal to control panel to activate alarm	
PIR detectors	Movement	Signal to control panel, alarm activated	
Internal alarm sirens	Signal from control panel	Siren activated	
Rearm facility	Alarm set off once, signal from	Sets system again	

	control panel		
Panic/personal attack button	Pushing of button	Signal to set siren off	
Heat detector	Heat	Metal strip makes circuit, alarm goes off	
Floodlights	Movement, or switching on	Light comes on for a period of time	
Magnetic door contact	Opening/closing of door moves contacts apart	Signal to control panel to set off siren	
Perimeter protection	All of the beams being broken by somebody passing through them	Siren activated	
CCTV camera	Movement or camera set to record	Records whatever is in view	
RedCARE	Phone line cut or alarm activated	Sends message along lines to monitoring station	

Advantages of the advanced security system

- This system is top of the range, and will protect the family very well from a lot of eventualities to an extremely high standard of protection.

- Even if somebody did manage to get past the security, then there are CCTV cameras, which will film everything that they can see, so they will have pictures of the intruder on tape that should aid them in discovering exactly who it was.

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- If the family do think that the system doesn't provide enough security, which is unlikely in this top of the range system, then they could upgrade it very easily to something more suitable to their needs. The same goes the other way; components can be removed if the family feel that it isn't necessary in the system.
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- Perimeter protection stops anybody coming close to the house without an alarm being sounded when it is set. This is very helpful if people want some privacy and/or do not want people attempting to enter their home.
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- The rearm facility means that if a burglar tries again to enter the house the system will not be deactivated, and a siren will still sound.
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- The panic buttons mean that if the system isn't set and somebody enters the house when others are in there, they can still get help by simply pushing the button.
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- RedCARE will mean that if the phone line is cut, or whenever the alarm goes off there will be somebody there checking the house and what has happened to cause the alarm to be activated.
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- The vibration and movement sensors will detect anybody in the house or trying to break the windows to get in, the shock sensors will stop anybody before they actually do get into the house.
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Disadvantages of the advanced security system

- Cost – although this system does provide top of the range protection and security for the family it could end up costing a huge amount of money.
- If an intruder knew there were perimeter protection beams they could crawl through them, as then they would just be breaking the bottom beam meaning that the alarms wouldn't be set off because all of the beams need to be broken for a siren to be sounded.
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- The alarm may go off when there isn't an intruder, for example movement outside may set off the movement sensor, and the alarm going off would mean that the monitoring station would be contacted and the family would have to pay a callout fee although nothing was wrong.
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- If somebody were to knock on the windows of the house, this may make the vibration sensor go off, and again the monitoring station would be contacted although there wasn't an intruder.
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- CCTV cameras would need their tapes changing regularly to make sure that the tape doesn't run out, and the tapes would also need to be checked. If the camera happened to be set to the wrong angle, or somebody knocked it so it was filming at the wrong angle then intruders wouldn't be captured on film.
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- The system would need continuous checking to make sure that everything is running smoothly otherwise there is little point in having the system. This could be time consuming.
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- There would probably need to be more wires within the advanced system than the basic, and these being laid around the house would be unsightly.
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- The system is very good, but it may take a lot of time to install correctly and servicing would need to take place at least once a year also.
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Considerations of installing the advanced system

Below is a list of things that the family will need to consider if they wish to install the advanced system.

- Training of the family – With the system being so hi tech, the family will certainly need training so that they know how to use it correctly and to avoid unnecessary errors within the system.
- Changing the system codes – The codes should be changed regularly, to be sure that nobody obtains them that shouldn't and enters the premises. However the disadvantage of this is that the family may forget the codes with them being changed regularly.
- Trial runs – The system will need to be tested to be sure that it is all working, and a test run with the RedCARE monitoring station should take place to be sure that everything will run smoothly should the alarm be set off.
- Power cuts – The family need to plan for power cuts, by making sure that a stand by battery is included in the system. If there isn't a back up battery, then the system will not work in the event of a power cut making it susceptible to burglars.
- Sensor sensitivity – It needs to be made sure that the movement sensors are sensitive enough to pick up people in the rooms, but that they do not pick up things moving outside. The vibration sensors should be sensitive enough to pick up somebody rattling and attempting to break the glass, but shouldn't set the alarm off just because somebody is knocking on the window.
- Cost - Although it is the best security system available it will cost a huge amount of money. The family need to decide whether it will really be worth it, or if they should purchase a system more suited to their personal and financial needs.