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Are you worried about your home being broken into?

Are you worried about some unidentified person entering through a door?

Well the solution is here with Gotcha Alarms. Many people have different shaped buildings that's why Gotcha alarms make custom door alarms for anyone. These alarms are made to your specifications and are able to withstand pretty much anything.

The main receiver is made of 0.5mm galvanised steel (strong enough to stand up to a car running over it). Being made of steel it is vandal proof. The top of it will be bolted to the main housing using dome head cap screws, these here are only able to be unscrewed with an allen key so it is a small added tamperproof accessory. All the components are selected to withstand tampering and hard knocks

Above: photo of the mock up for the transmitter (shown in its environment)

This here is a cardboard mock-up of the transmitter photographed in its environment. The real transmitter will be made of aluminium or steel so it can stand up against the harsh knocks of people smashing it as it is within reach of people and it is also technically dobbing in the escapes from assemblies so must be vandal proof and tamperproof

Above: photo of button head cap screws.

These button head cap screws will be used for fixing the front plate to the main receiver. As you can see they are only able to be undone with an Allen key so it prevents tampering of the internal components.

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and green LED's below it is the key switch which will switch the buzzer (big circle next to it) on or off. The buzzer will always be on but when a show is in session the buzzer will be switched off. When the key switch is engaged it will direct the current to the buzzer, which will go off (along with the LED) when the door is opened. This here alerts anyone on the ground that people are escaping from the back fire exit doors.

Bottom of middle page: photo of the steel receiver box.

This is the steel receiver box with the top below. The corners of the box are welded. To the right of this text is the button head cap screws that will fix the main lid to the receiver housing. When properly wired up it will have a siren/buzzer inside the receiver which is able to be switched off (via key switch) when a show is on, switching off the buzzer will just allow the red LED's to light up so you can still tell that the door is open visually.

Above: photo of the cardboard mock up receiver box.

This here is the mock up of what the steel receiver box will look like with the components on it. Door 1 and 2 will be the left and right auditorium fire exit doors and Door 3 is the backstage door. The red dots are the LED's these will light up when the door has been opened. The circle in the middle with the red

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Evaluation

Summary of client feedback

- Costing: costing will be well under budget and has got the go ahead by the stakeholder and wider stakeholder.
- Material choice: the material choice is excellent as it is galvanised steel that will stand up to knock, abrasions and vandalism
- Function: the function is excellent and will be able to work without fail

Further Research

The further research that I had to follow up on after meeting with my clientele was the frequency range, accuracy and frequency interference.

My clientele wanted to know was does the frequency that my final product transmits interfere with any other radio equipment in my environment and intended location.

In doing this I can program the door alarms to a frequency that will not interfere with the radios and the microphones.

Here is where the main receiver will be positioned, the reason it will be positioned here is because this is the main lock up door and is always the last to be locked at night making it easier on the caretaker.

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Concept Development

Batteries + power socket and PCB all fit inside

Aerial coming out of Receiver Box

Box is smaller

Label plates with door number printed on it

Changed

LED's to a chrome bezel (energised will not be tampered with, etc)

Colours is still Black

Removed Key Switch

Removed Buzzer

Smaller discrete box

May keep very close to it is discrete but colour too

is sealed and tamper proof

PCB fully fits inside

Having established the container for the receiver and transmitter the student then provided evidence of his transmitter and receiver circuits and wiring diagrams.

↓

It was in his 14 phase flow chart where the student showed evidence of testing the circuits.

↓

The student then placed the receiver and transmitter in situ in order to test the alarm system and demonstrate potential fitness for purpose to the stakeholders.

My intended location will be positioned in four different areas.

Location	Type
1. The School Lighting Box	• Secondary receiver
2. Fire exit door 1	• Transceiver
3. Fire exit door 2	• Transceiver
4. And the main entry/lock up door	• Main receiver

Location 2: Fire Exit Door 1

Above is the left hand side door positioned behind the follow spot box.

This door will have a transmitter positioned in the top right hand side of the door frame

Location 2: Fire Exit Door 1

Where the magnetic switch will be positioned (top right corner of door)

The transmitter will be positioned up in the very top right corner

2

Concept 1

Materials: The housing will be made of galvanized mild steel as this is to stop tampering and vandalism.

Construction: The construction of the housing will be made of galvanized steel (2mm) with welded edges this was chosen to withstand a harsh knock and/or sabotage.

Cost: The cost of the housing will be relatively cheap as the steel I will be using will be off cuts that have been put aside.

Sketches: Two hand-drawn sketches of the alarm housing. The first sketch shows a front view with three door indicators labeled 'DOOR 1', 'DOOR 2', and 'DOOR 3'. It includes a 'FDH Receiver' on the left, a 'Key Switch to silence speaker in production' on the right, and a 'Speaker' on the far right. A note says 'Finish: The finish of the concept will be the same colour as it's surroundings. Just the finishing of the transceiver will be black in colour, as where it will be positioned it will be in the house.' The second sketch shows a side view with 'Red LEDs', 'Green LED', 'Speaker', and 'Magnetic Reed Switch' components. A note says 'Shape: The shape of the manufactured products will be a rectangular prism.' A third sketch shows a perspective view of the housing with a 'Magnetic Reed Switch' and a 'Key Switch'.

Resources needed: The resources needed for this concept will need to be sourced from my father's work (DSK engineering) the school does not have a bonding machine that can do 3mm plate steel so I will need to go into work with dad and bend up the housings on the break press at work.

Stakeholder feedback: *Looks is good also functionality is good.*

Other sketches: A sketch of a door with an 'EXIT' sign and a 'Magnetic Reed Switch' mounted on the door frame.

2

Please note: The evidence presented in this exemplar provides snapshots of student evidence. The commentary aims to link the student evidence which for this standard was 40+ A4 pages.

The student brief was confirmed by the teacher:
 "To develop a proposal for a conceptual design of an alarm system for the school auditorium"

Specifications included:

- Will alert by alarm
- Can transmit over 20 metres
- Run on 240VAC-12VDC power supply
- The transmitter will be battery powered.
- Low cost

Intended Location

This door (right hand side fire exit door) is hardly left open as you can see it from the stage, but it is also used to cool down the crowd it shows the only problem is that you forget about it and realise that you have to go back up the stairs to go and close it

As you can see from these photos if someone discovered that the fire exit doors have been left open at night someone could easily drive a car into the school grounds and onto the field behind the auditorium and start to load the car up with stolen equipment

The background to this brief is that the back doors to the school auditorium are often left open by mistake.

The student began his practice by investigating the environment and the places that need alarming.

He also developed a questionnaire in order to establish stakeholder view points on his identified issue.

He conducted minimal research into existing solutions and components with some annotation.

He produced a range of 2D and 3D freehand sketching of his first design ideas and asked his stakeholders to fill in a concept screening chart.

How would you like to be notified when a person is escaping or entering the door?

- Alarm light in administration area
 - Phone left in control room
 - Light outside entrance sign

How many receivers would you like throughout the school or auditorium?

2 - in Executive Office and Light Room

Would you like the doors alarmed (i.e. a loud noise goes off when door is opened (noise can be switched off for productions) or silent?

Yes - all doors to be alarmed and connected to light system above

Are there any other doors that are left open and that are a concern for the school?

- Mainstage area