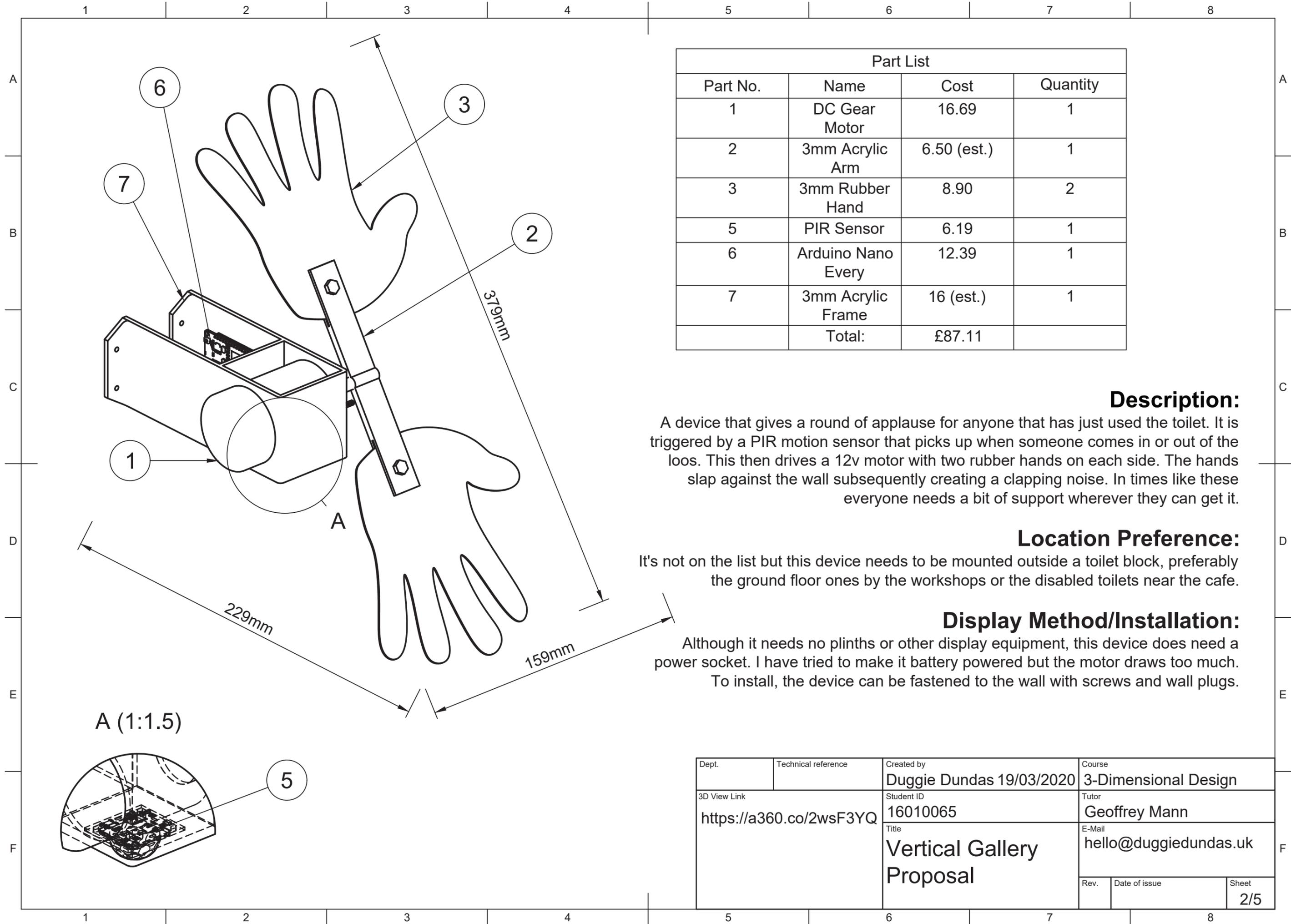


**Please watch my video to view the proposal.
The password is VG2020**



<https://vimeo.com/399601592>

Dept.	Technical reference	Created by Duggie Dundas 19/03/2020	Course 3-Dimensional Design	
		Student ID 16010065	Tutor Geoffrey Mann	
		Title Vertical Gallery Proposal	E-Mail hello@duggiedundas.uk	
		Rev.	Date of issue	Sheet 1/5



Part List			
Part No.	Name	Cost	Quantity
1	DC Gear Motor	16.69	1
2	3mm Acrylic Arm	6.50 (est.)	1
3	3mm Rubber Hand	8.90	2
5	PIR Sensor	6.19	1
6	Arduino Nano Every	12.39	1
7	3mm Acrylic Frame	16 (est.)	1
Total:		£87.11	

Description:

A device that gives a round of applause for anyone that has just used the toilet. It is triggered by a PIR motion sensor that picks up when someone comes in or out of the loos. This then drives a 12v motor with two rubber hands on each side. The hands slap against the wall subsequently creating a clapping noise. In times like these everyone needs a bit of support wherever they can get it.

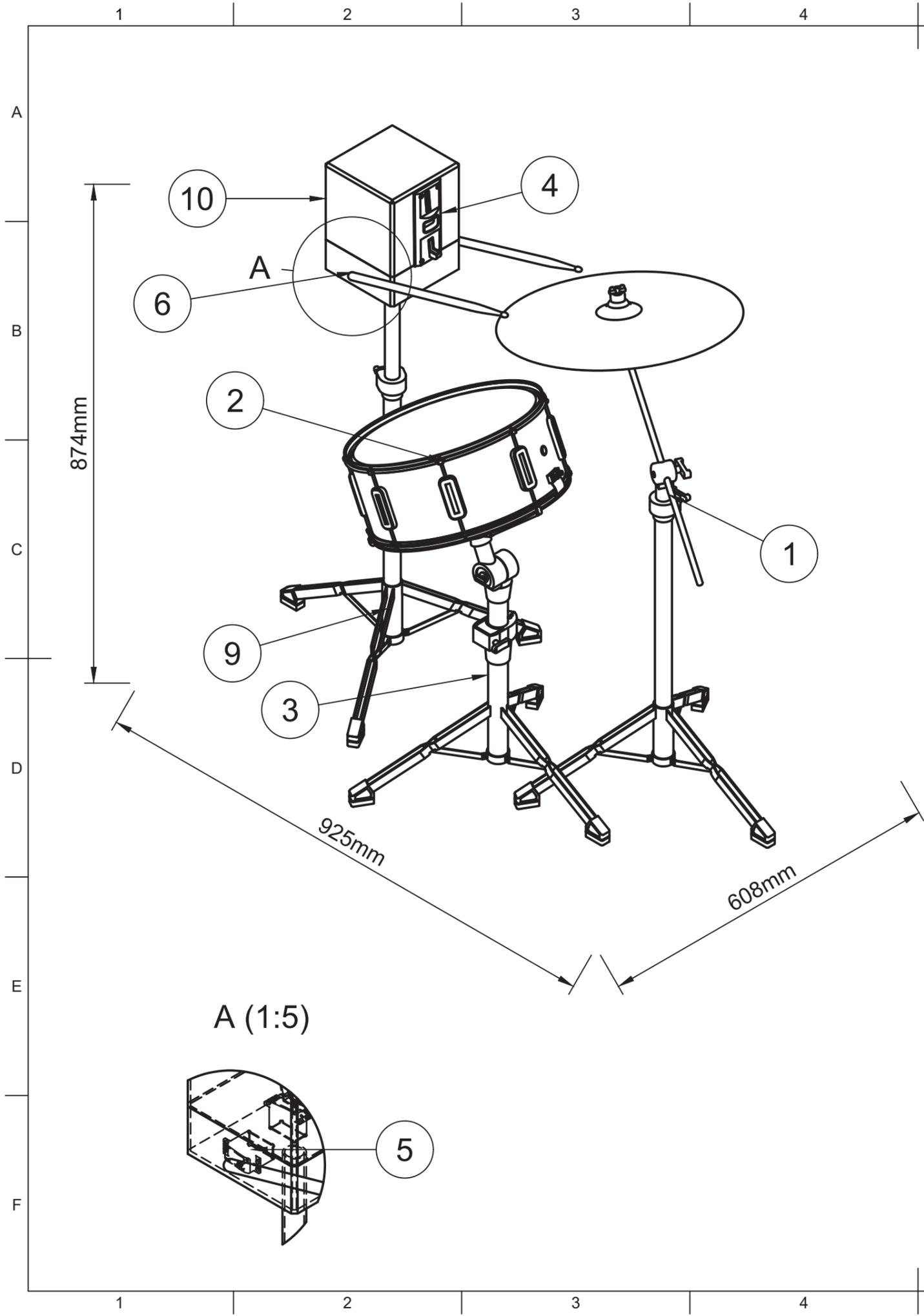
Location Preference:

It's not on the list but this device needs to be mounted outside a toilet block, preferably the ground floor ones by the workshops or the disabled toilets near the cafe.

Display Method/Installation:

Although it needs no plinths or other display equipment, this device does need a power socket. I have tried to make it battery powered but the motor draws too much. To install, the device can be fastened to the wall with screws and wall plugs.

Dept.	Technical reference	Created by Duggie Dundas 19/03/2020	Course 3-Dimensional Design
3D View Link https://a360.co/2wsF3YQ		Student ID 16010065	Tutor Geoffrey Mann
		Title Vertical Gallery Proposal	E-Mail hello@duggiedundas.uk
	Rev.	Date of issue	Sheet 2/5



Part List			
Part No.	Name	Cost	Quantity
1	Crash Cymbal	65.99	1
2	Snare Drum	79	1
3	Snare Stand	"	1
4	Coin Slot	0	1
5	Sunfounder 20kg Servo Motor	15.99	3
6	Drumstick	0	2
9	Stand	14.99	1
10	Housing	43 (est.)	1
Total:		£250.95	

Description:

To aid the awkward conversations and flat jokes produced whilst waiting for the lifts, the *Joke Enhancer* produces a "Badum Tiss" to queue the audience to laugh. It is activated by inserting any coin between the value of 1p and 50p.

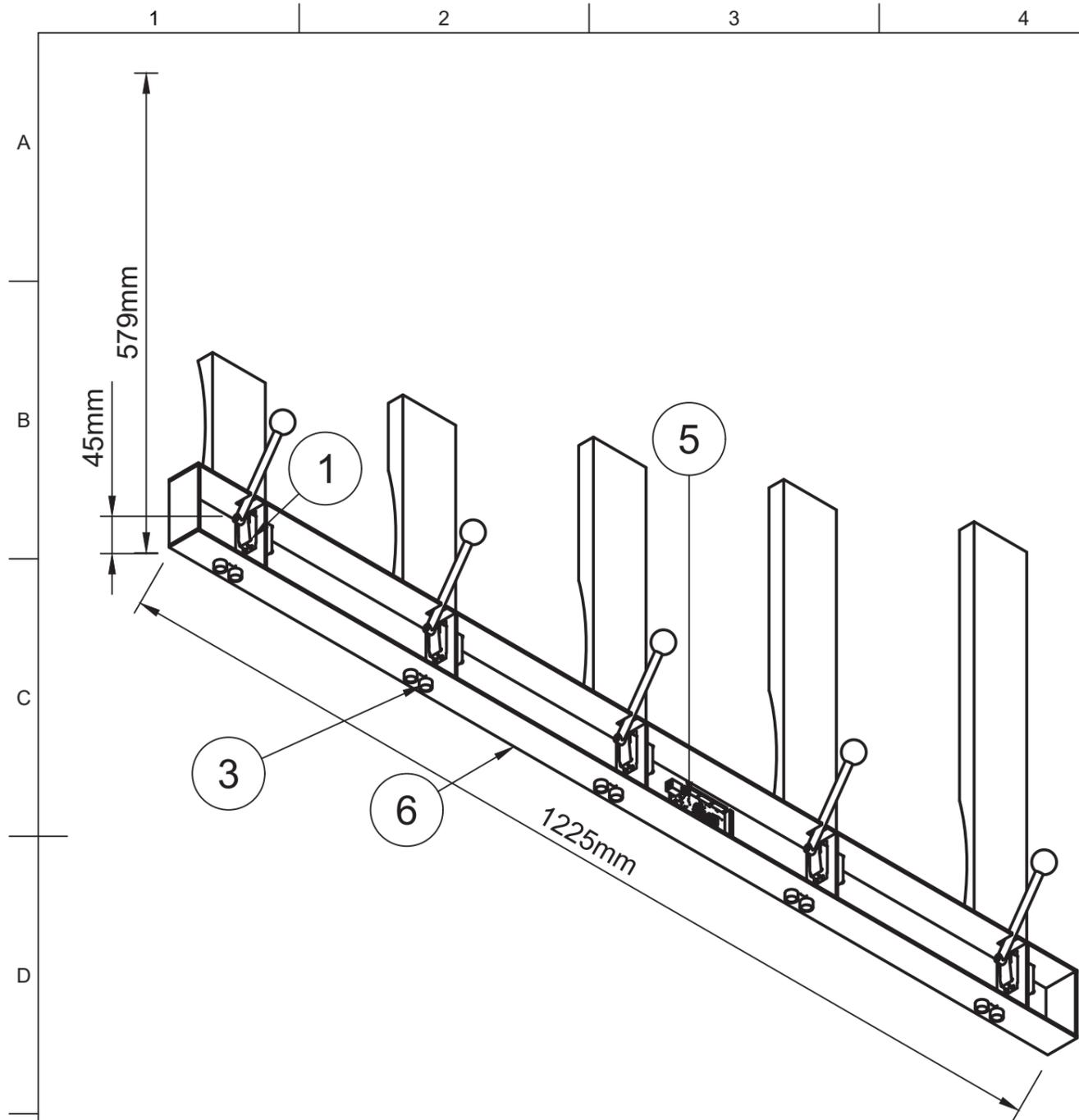
Location Preference:

GF: A, B 1F: A, B, C
 2F: A, B, C 3F: A, B, C
 4F: A, B

Display Method/Installation:

The object is free standing and requires no plinths, tables, etc. To install, it simply needs putting in place and plugging into the floor power socket.

Dept.	Technical reference	Created by Duggie Dundas 19/03/2020	Course 3-Dimensional Design
3D View Link https://a360.co/33AZBKI		Student ID 16010065	Tutor Geoffrey Mann
		Title Vertical Gallery Proposal	E-Mail hello@duggiedundas.uk
		Rev.	Date of issue
			Sheet 3/5



Part List			
Part No.	Name	Cost	Quantity
1	Sunfounder 20kg Servo Motor	15.99	5
3	HC-SR04 Distance Sensor	1.40	5
5	Arduino Mega 2560	41.42	1
6	3mm Acrylic Housing	33	1
Total:		£171.36	

Description:

Converting human traffic into a melody. Each person leaving or entering the building becomes a single note in a big music box. 5 distance sensors are placed under the device and when each one detects someone coming through, it triggers a strike on it's corresponding key.

Location Preference:

Again, not on the official list but I would like this to be mounted to the wall under the fire exit sign by the main entrance. If this isn't possible then I could make it work in site C or D on the ground floor.

Display Method/Installation:

Does not require any equipment besides electricity. For installation, mount to wall with screws and wall plugs or suspend from string that is tied onto something higher up.

Dept.	Technical reference	Created by Duggie Dundas 19/03/2020	Course 3-Dimensional Design
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		Title Vertical Gallery Proposal	E-Mail hello@duggiedundas.uk
		Rev.	Date of issue
		Sheet 4/5	

Costing

Here I have factored in every purchase I need to make to complete the three devices. To ensure reliability and a top quality finish, I have chosen to use high-end parts such as the official Arduino boards over Chinese replicas. Some of the other components such as wires, soldering equipment and fastenings are not featured on this table as I already own the required parts.

Due to the uncertainty of whether university will be open again this academic year, I have factored in costs at the university workshops and costs for using outside materials and laser cutting services.

Although confident with my cost analysis, these prices may change due to current affairs or the damage of fragile electronic components.

Vertical Gallery Proposal Cost Breakdown (University services)

Description	Supplier	Individual Cost	Quantity	Sub-Total	Link (If applicable)	Project
DC High Speed Gear Motor	Amazon	£16.69	1	£16.69	https://www.amazon.co.uk/g	Clapper
3mm 1x1.4m Rubber Sheet	Amazon	£17.95	1	£17.95	https://www.amazon.co.uk/R	Clapper
3mm Acrylic Sheet 1000x600mm	MMU (Wood workshop)	£16.50	1	£16.50	N/A	Clapper
Laser Cutting x 1hr	MMU (CAM Suite)	£10.00	0.5	£5.00	N/A	Clapper
Arduino Nano Every	Arduino	£12.39	2	£24.78	https://store.arduino.cc/ardu	Clapper
Arduino Mega 2560 Rev3	Arduino	£41.42	1	£41.42	https://store.arduino.cc/ardu	Xylophone
20kg Servo Motor	Amazon	£15.99	5	£79.95	https://www.amazon.co.uk/S	Xylophone
3mm Acrylic Sheet 1000x600mm	MMU (Wood workshop)	£16.50	2	£33.00	N/A	Xylophone
Laser Cutting x 1hr	MMU (CAM Suite)	£10.00	1	£10.00	N/A	Xylophone
20kg Servo Motor	Amazon	£15.99	3	£47.97	https://www.amazon.co.uk/S	Joke Enhancer
Snare Drum, Stand and Case	Amazon	£79.00	1	£79.00	https://www.amazon.co.uk/E	Joke Enhancer
Stagg 16" Crash Cymbal & Stand	Amazon	£65.99	1	£65.99	https://www.amazon.co.uk/S	Joke Enhancer
Music Stand	Amazon	£14.99	1	£14.99	https://www.amazon.co.uk/R	Joke Enhancer
3mm Acrylic Sheet 1000x600mm	MMU (Wood workshop)	£16.50	2	£33.00	N/A	Joke Enhancer
Laser Cutting x 1hr	MMU (CAM Suite)	£10.00	1	£10.00	N/A	Joke Enhancer
PIR Motion Sensor 5 Pack	Amazon	£6.19	1	£6.19	https://www.amazon.co.uk/S	Clapper
HC-SR04 Distance Sensor 5 Pack	Amazon	£6.99	1	£6.99	https://www.amazon.co.uk/A	Xylophone
				Total:	£509.42	

Vertical Gallery Proposal Cost Breakdown (Outside services)

Description	Supplier	Individ	Quan	Sub-To	Link (If applicable)	Project
DC High Speed Gear Motor	Amazon	£16.69	1	£16.69	https://www.amazon.co.uk/gg	Clapper
3mm 1x1.4m Rubber Sheet	Amazon	£17.95	1	£17.95	https://www.amazon.co.uk/Ru	Clapper
3mm Acrylic Sheet 2030x1523mm	The Plastic Shop	£120.34	1	£120.34	https://www.theplasticshop.co	ALL
Laser Cutting x 1hr	Laserlea	£27.00	0.5	£13.50	https://laserlea.com/	Clapper
Arduino Nano Every	Arduino	£12.39	2	£24.78	https://store.arduino.cc/ardu	Clapper
Arduino Mega 2560 Rev3	Arduino	£41.42	1	£41.42	https://store.arduino.cc/ardu	Xylophone
20kg Servo Motor	Amazon	£15.99	5	£79.95	https://www.amazon.co.uk/SU	Xylophone
Laser Cutting x 1hr	Laserlea	£27.00	1	£27.00	https://laserlea.com/	Xylophone
20kg Servo Motor	Amazon	£15.99	3	£47.97	https://www.amazon.co.uk/SU	Joke Enhancer
Snare Drum, Stand and Case	Amazon	£79.00	1	£79.00	https://www.amazon.co.uk/Es	Joke Enhancer
Stagg 16" Crash Cymbal & Stand	Amazon	£65.99	1	£65.99	https://www.amazon.co.uk/St	Joke Enhancer
Music Stand	Amazon	£14.99	1	£14.99	https://www.amazon.co.uk/Ra	Joke Enhancer
Laser Cutting x 1hr	Laserlea	£27.00	1	£27.00	https://laserlea.com/	Joke Enhancer
PIR Motion Sensor 5 Pack	Amazon	£6.19	1	£6.19	https://www.amazon.co.uk/Se	Clapper
HC-SR04 Distance Sensor 5 Pack	Amazon	£6.99	1	£6.99	https://www.amazon.co.uk/At	Xylophone
				Total:	£589.76	

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Rev.	Date of issue	Sheet 5/5	