

This design is a revolving cylinder that encompasses an LED light source that shines through the film and casts that light colour onto the dance floor.

The open source electrical board (arduino, raspberry pi etc.) can be programmed to run a motor and when it detects the laser reflection, stop the motor for five seconds and then continue running

The manufacture of this design is centred around the ease of access to materials, cost effectiveness and manufacturing cost as the target audience is most likely going to need to be able to make this as cheaply as possible.

- Out and in runner gears - manufactured in nylon, tough and which is tough and 3D printable. The outrunner is made in sections.
- The outer shell is constructed from aluminium, which is lightweight and pyable meaning it can be constructed from easily and is light enough to lift onto the ceiling.
- Skateboard bearings are used as they are cheap and standard sizes.
- The only specialist equipment used is a 3D printer and soldering iron for the electrics.
- LEDs are used as they produce lots of light and very little heat.

Marker's Comments

This is a good example of how a candidate has included an open-source platform, in this case an Arduino, in an answer.

Besides including it they have also demonstrated that they know how it would work. This answer lent itself to a relatively simple solution mechanically, yet provided the opportunity for the inclusion of electronic control of some sort.

What also impresses about this answer is the excellent attention shown to manufacture and componentry. The way the candidate has divided up their annotations also makes the answer easier to read and understand. A few things are left unexplained, such as the motor drive system, so the candidate did not score full marks.

Name: _____

School: _____

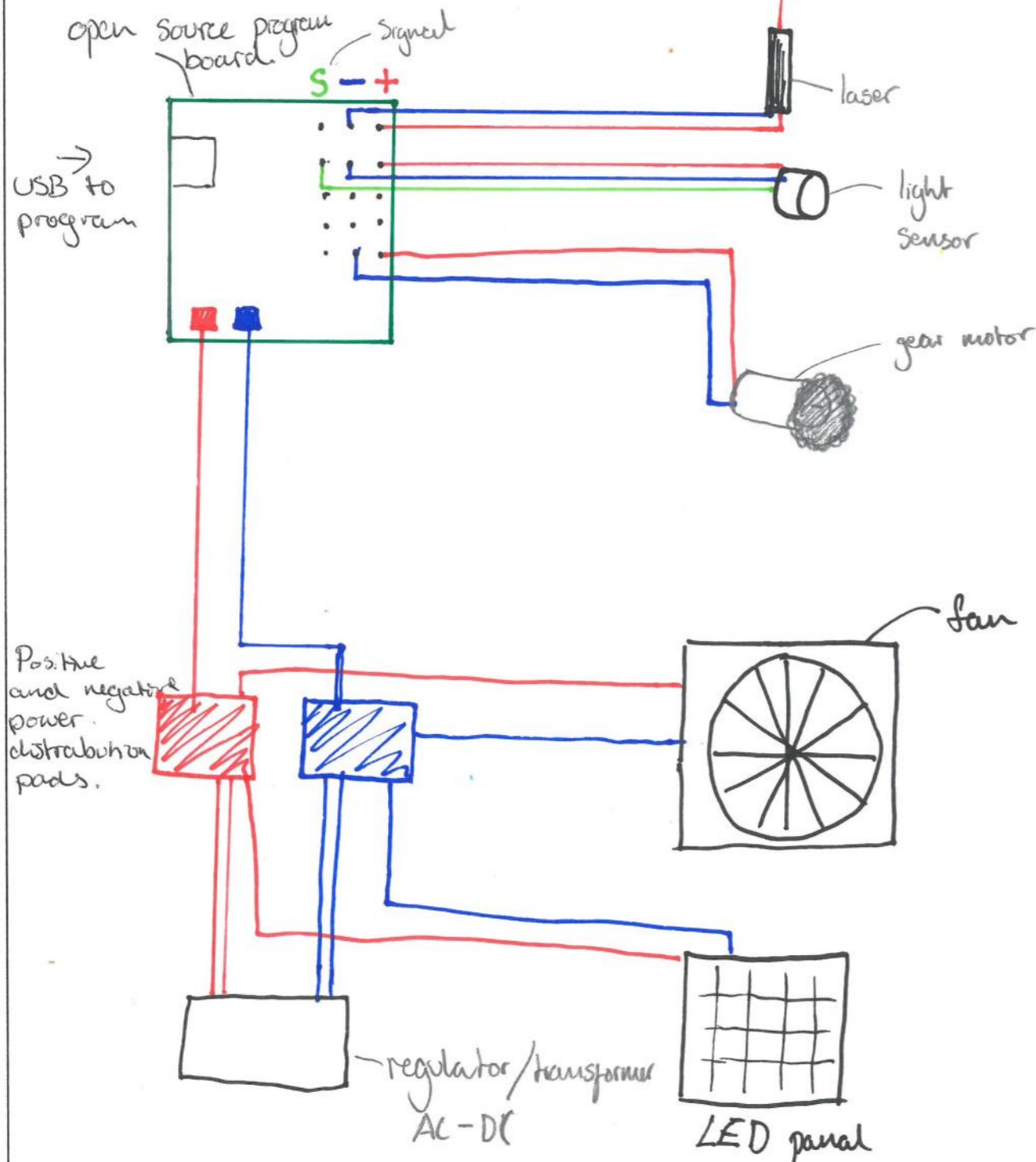
Section A or B: **B**

Question Number: **6**

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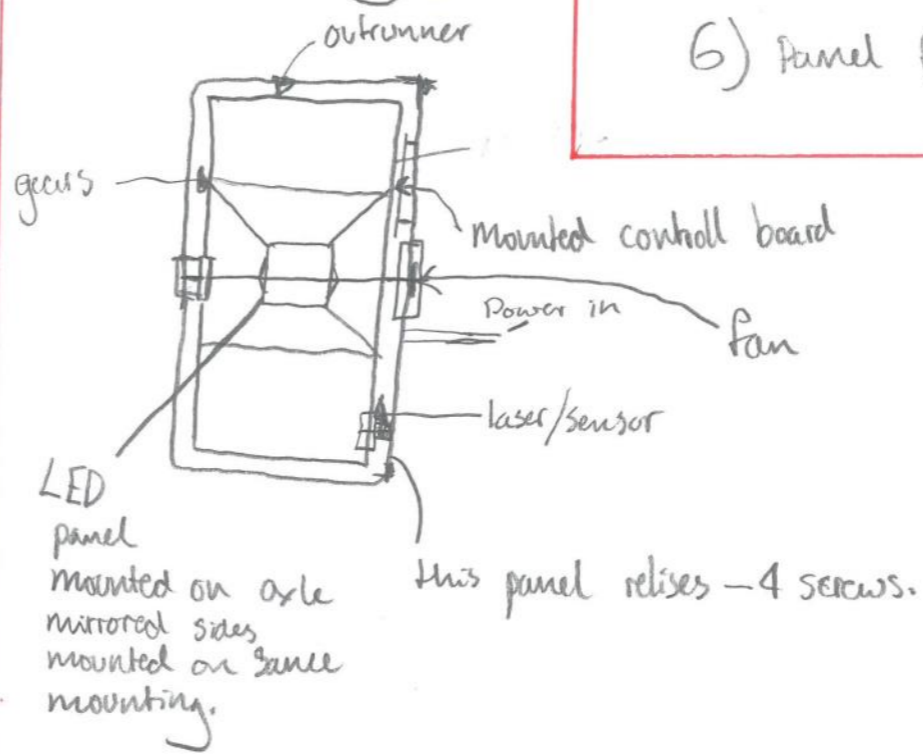
Electrical Schematic



Construction

- 1) 3D printed outrunner connects to gel sheets
- 2) outer aluminium components house the in runner
- 3) bearings for outrunner fitted
- 4) inner axle connects components such as LED and mirrors
- 5) electrical components mounted on panel
- 6) panel fitted

Mounting



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Section A	Quality of the 3 Concepts - Flair and Creativity	/30
	Reasoning	/10
	Technical knowledge	/10
	Total for Section A	/50
Section B	Functionality of Proposal	/30
	Materials & Components	/10
	Construction Method	/10
	Total for Section B	/50
Total		/100

Marker's Comments:

Name: _____ School: _____ Section A or B: **B** Question Number: **6** Page: **2** of **2**