PROPOSALS FOR I-LIGHT 2018 (GROUP 6)

GOAL: Our main goal is to create a light exhibit that will have some form of **reaction to a user's actions** (in this case, the **cycling motion** from a fixed bicycle). We have proposed two main ideas, which will be detailed further on in the proposal and future presentations. These ideas will also be modified whenever necessary along the course of the project.

IDEA 1 – 'Floating Plastic' Exhibit

A modified idea based on our original idea. In summary, the user will pedal the bicycle, which in turn would power the fans or lights of the exhibition, causing the plastic (main feature of the exhibition) to react and 'dance' based on the speed and power of the fans.

Although the exhibit might be less complex in terms of aesthetics, the message we want to convey is on a deeper level, in a sense that it has to be read in between the lines (making it more impactful), rather than being a message that is obvious upon first glance.

OBJECTIVE

Reminder of the daily **habits** that each of us have cultivated which are **degrading** our environment.

MAIN CONCEPT

Idea stemmed from:
- Sustainability – what are some habits that are NOT environmentally sustainable but very hard to change?
- Everyone uses plastic bags.
- Stimulate the plastic bags floating around in public places, polluting the environment.

The exhibition will be divided into 2 aspects:
- Audience interaction – Bike Light.
- Visual representation of the message on **Environment sustainability through paradox** – Dancing Plastic

Connector:
- The kinetic energy generated through cycling the bike would convert into electrical energy which would power up either the lights or the fans in the covered installation.
  - Paradox – people being an accomplice of letting small habits such as disposing plastic bags or bottle, contributing to polluting the environment.

Message:
- Having one to give energy to power up the installation will serve as a paradox and remind the effects of using non-biodegradable materials in our daily life that are not safe for our ecosystem.

HOW DOES IT WORK

- Materials needed:
  i. Long plastic (any light non-biodegradable material)
  ii. 6 Fans
  iii. 14 Nylon wires/Steel wires

      iv.   Bright LED lights/Strips

      v.   Bicycle

      vi.   Arduino kit

      vii.   Speed detector

      viii.   Batteries/generator

      ix.   Transparent Acrylic to cover installation.

o   Dancing Plastic - Installation that will be installed as shown in *Figure 1*.
  - i.   Addition: will be caged in a transparent acrylic box or kept indoors with dim light.
  - ii.   Fans blowing from the bottom. Reversing direction of the blades at different timings will produce this effect
  - iii.   Sides of the cloth are attached to the nylon/steel strings which will allow it to move up and down but not get entangled.

o   Bike Light - The bike will be in front of the installation where the person will cycle (*Figure 2*) to "charge up" the fan/lights for the plastic to start dancing in a flowing motion, with lights either shining onto them (*Figure 3*) or the lights being emitted from the cloth (*Figure 4.1 and 4.2*) (Light on the cloth would weigh down the material. Have to compensate with strength of wind from fan)

o   "Charge up" - When they cycle, the speedometer in the Arduino will detect movement and indicate the system to light up or turn on the fan.

Figure 1

Figure 2

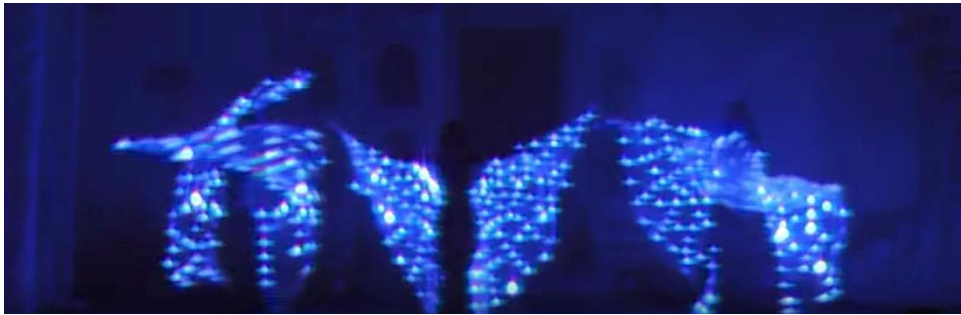Ballet de Plastique | Daniel Wurtzel

2:15 / 3:08

Figure 3

Figure 4.1

Figure 4.2

PHOTO REFERENCES

Figure 1 - https://www.youtube.com/watch?v=oGTOq4RGMP4
Figure 2 - https://i.pinimg.com/originals/21/71/7c/21717c98d2eb0a6b63b671676c2738c3.png
Figure 3 - https://www.youtube.com/watch?v=gGbhp6Y_7d0
Figure 4.1 - https://www.youtube.com/watch?v=MECLeOFJqoM
Figure 4.2 - https://www.youtube.com/watch?v=C9Fta-96V7Q

Our original proposed idea, and a slightly simpler idea in terms of the message being conveyed. The main gist of the exhibit is that one user pedals to completely light up several installations (which are originally dimly lit), allowing groups of people to take photos together.

What makes it a potentially promising idea is the flexibility and scalability of the light installations, in a sense that it is up to our own creativity, effort, skill (along with time and budget) to make the displays visually appealing (I.e can be simple/complex structures, small-scaled, large-scaled , etc.).

OBJECTIVE

Reminder that all our actions have an impact to the world in terms of sustainability.

MAIN CONCEPT

Besides the **bicycle** that will be used to power up the exhibitions, the exhibition will be divided into **three different layers** to reflect/remind the **three pillars of sustainability**:
- o **Economic sustainability**, where the display consists of **buildings**.
    - ▪ Basically 'powering' up buildings by adopting greener ways (cycling, kinetic energy) of generating electricity, without compromising future generations through current sources of energy that may cause pollution (fumes from coal) or radiation (nuclear energy).
- o **Environment sustainability**, where the display consists of **trees**.
    - ▪ Trees reduce carbon footprint, avoid mass logging of trees for the sake of development.
- o **Social sustainability**, where the display consists of user **apparel** such as a dress, ties, etc. (TBC)

Message:
- o Adopting renewable sources of energy to generate electricity (In this case kinetic energy to electrical energy)
- o Sustainability is a shared effort, every individual is responsible for maintaining the Earth.

HOW DOES IT WORK

- o Materials needed:
    - i. Recyclable materials (preferred) for exhibits/installations
    - ii. Bright LED lights/Strip
    - iii. Bicycle
    - iv. Arduino kit
    - v. Speed detector/potentiometer
    - vi. Batteries/generator

- o The displays will initially be lit up at around 25% brightness. A user will then mount on the bicycle and begin pedalling, where the pedalling speed will determine the brightness of the installations, producing sort of a charging effect for the lights. Once a target speed is reached, the installations will be fully lit up (or at 80%, to prevent overheating of LEDs).

- o "Charge up" – The speedometer in the Arduino will detect movement and adjust the brightness of the LEDs based on the pedalling speed of the bike.

Figure 5