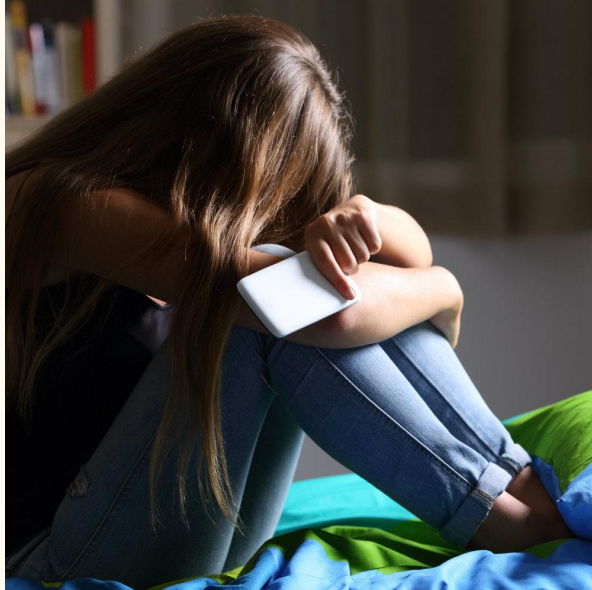# Dorm Room De-Depressor

Group 8 - Kristina Foltz, Connor Johansson, Aaron Ramirez, Katie Pascavis

Project Statement

Create a solution to lessen mental health issues associated with long durations of time spent in a dorm room.

- Why?

(10)

Why we chose our project

- Poor quality of college mental health
- Mental health plays a major role in student academic success (12)
- Extends beyond college application

(14)

Stakeholders/Customers

- College students living in dorms
- People living in small areas
- People whose mental health is affected by room confinement
- Stakeholders: landlords/ college housing associations

(11)

Customer Interview #1

- Interview: Nina Rowley
  - Freshman staying in Rosewood Hall
- Needs
  - Increased lighting
  - Increased airflow in room
- Insights
  - Light fixture
  - Automatic window opening mechanism

Customer Interview #2

- Interview: Reilley Burton
  - Freshman staying in Cottonwood Hall
- Needs
  - Increased lighting
  - Comfortable space in dorm
- Insights
  - Light Fixture
  - Make project as small as possible

Requirements

- Must fit on a 40 in x 70 in window
- Must be able to hang on a college dorm wall using command strips- under 32 pounds
- Must be under $60

Criteria

- Effective in aiding mental health
- Fit into a college dorm
- Minimally invasive
- Aesthetically pleasing
- Increase lighting and airflow

Interaction Matrix

| Criteria	Effectiveness	Aesthetic	Durability	Space	Affordability	Score
Effectiveness	1	9	4	1	4	19
Aesthetic	1/9	1	1/7	1/9	1/5	1.57
Durability	1/4	7	1	1/6	3	17.42
Space	1	9	6	1	1/6	17.67
Affordability	1/4	5	1/3	6	1	12.58

1= Equal importance

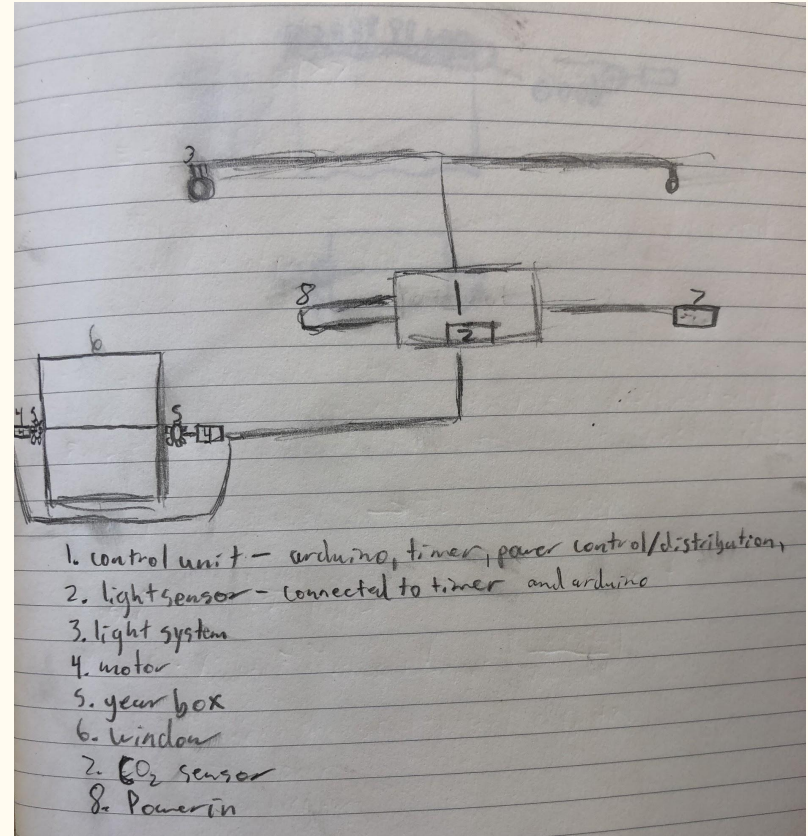5= A bit more important

9= Way more important

Kristina's Design

- Automatically closing curtains set on timer
- Light sensor that adjusts light level with string of lights.
- Dry erase board that erases automatically (distance sensor)
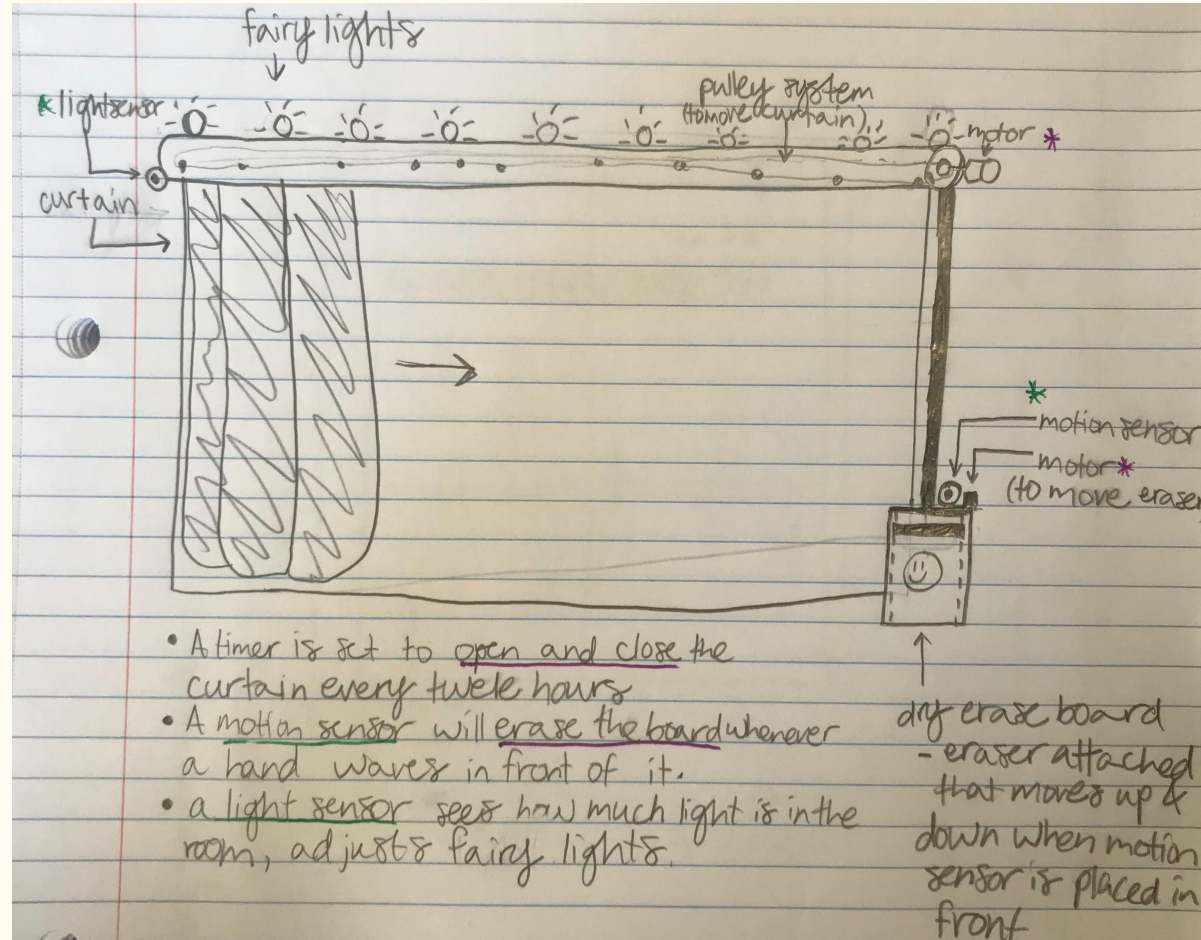
Connor's Design

- Mounted in wall unit
- Permanent fixture
- Integrated into an inhome system
- Automatic light control, open and close window
- Sensors-light levels and air quality

1. control unit – arduino, timer, power control/distribution,
2. light sensor – connected to timer and arduino
3. light system
4. motor
5. year box
6. window
7. CO₂ sensor
8. Power in

Aaron's Design

- Light sensor for increased lighting
- Motor to pull up window for increased air flow
- Temperature sensor for A/C
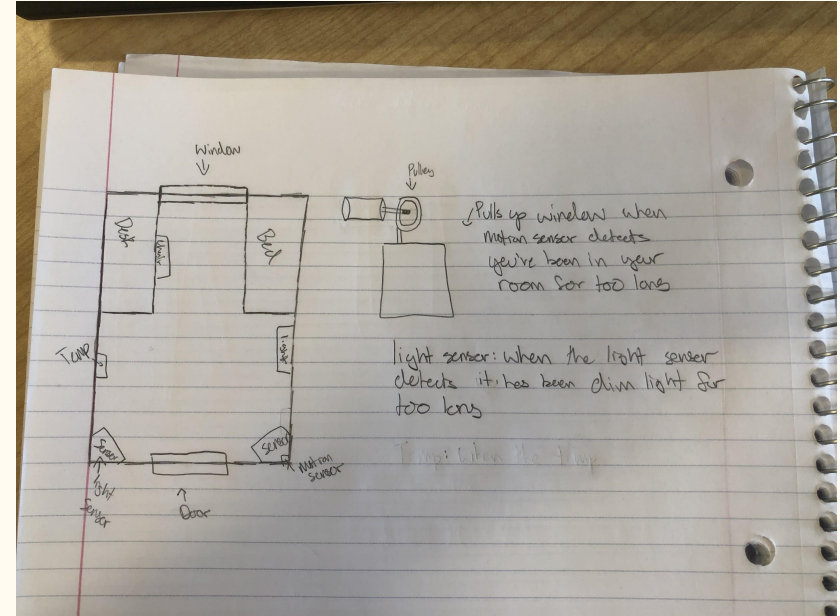
Katie's Design

- LED lamp idea
- Curtain mover
- Window opener
- Night vs. day
- White noise
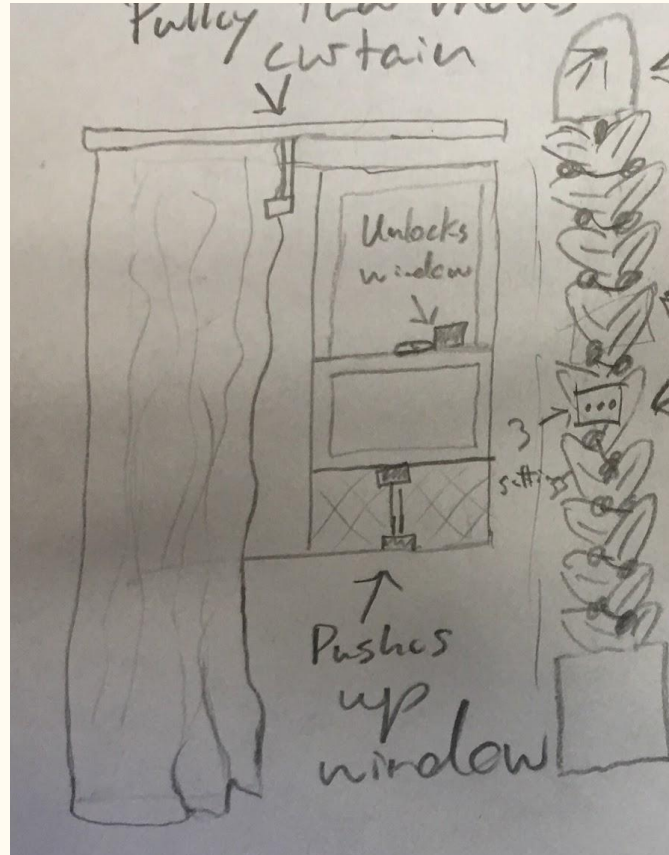
Decision Matrix

1= 🙁   9= 😁

| Criteria	Weight	Moving Curtain		Opening Window		Smells		Light Control		White Board		White Noise	
		Score	Total	Score	Total	Score	Total	Score	Total	Score	Total	Score	Total
Effectiveness	.28	9	2.52	9	2.52	6	1.68	7	1.96	4	1.12	6	1.68
Aesthetic	.02	7	.14	4	.08	3	.06	8	.16	2	.04	3	.06
Durability	.26	6	1.56	4	1.04	5	1.3	6	1.56	6	1.56	6	1.56
Space	.26	7	1.82	7	1.82	5	1.3	9	2.34	2	.52	4	1.04
Affordability	.18	7	1.26	7	1.26	4	.72	8	1.44	5	.9	2	.36
			7.3		6.72		5.06		7.46		4.14		4.7

Proposed Design

- Switch for day vs. night mode
- Light sensor that changes LED color/intensity
- Spray mechanism for essential oils

Mood Lighting

Aromatherapy

5

40 in
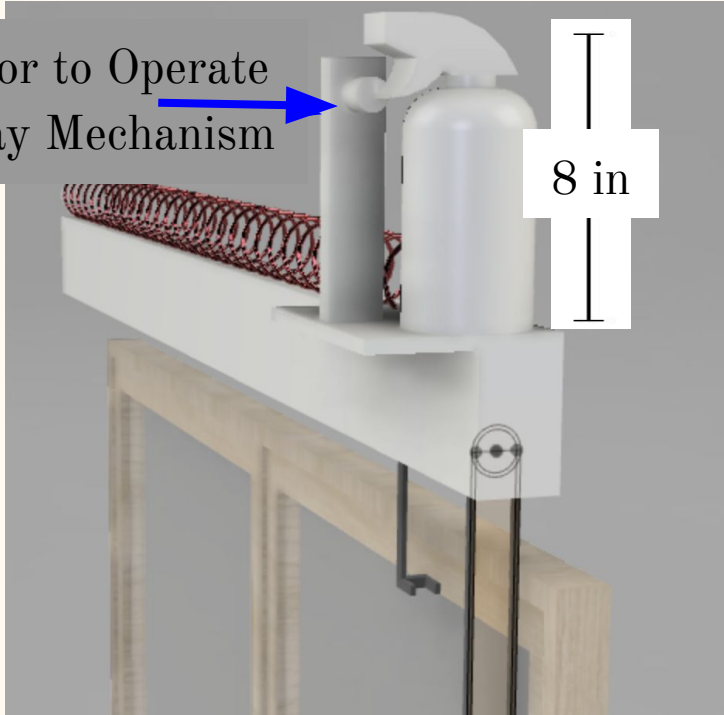
Curtain Mover

Window Opener

70 in
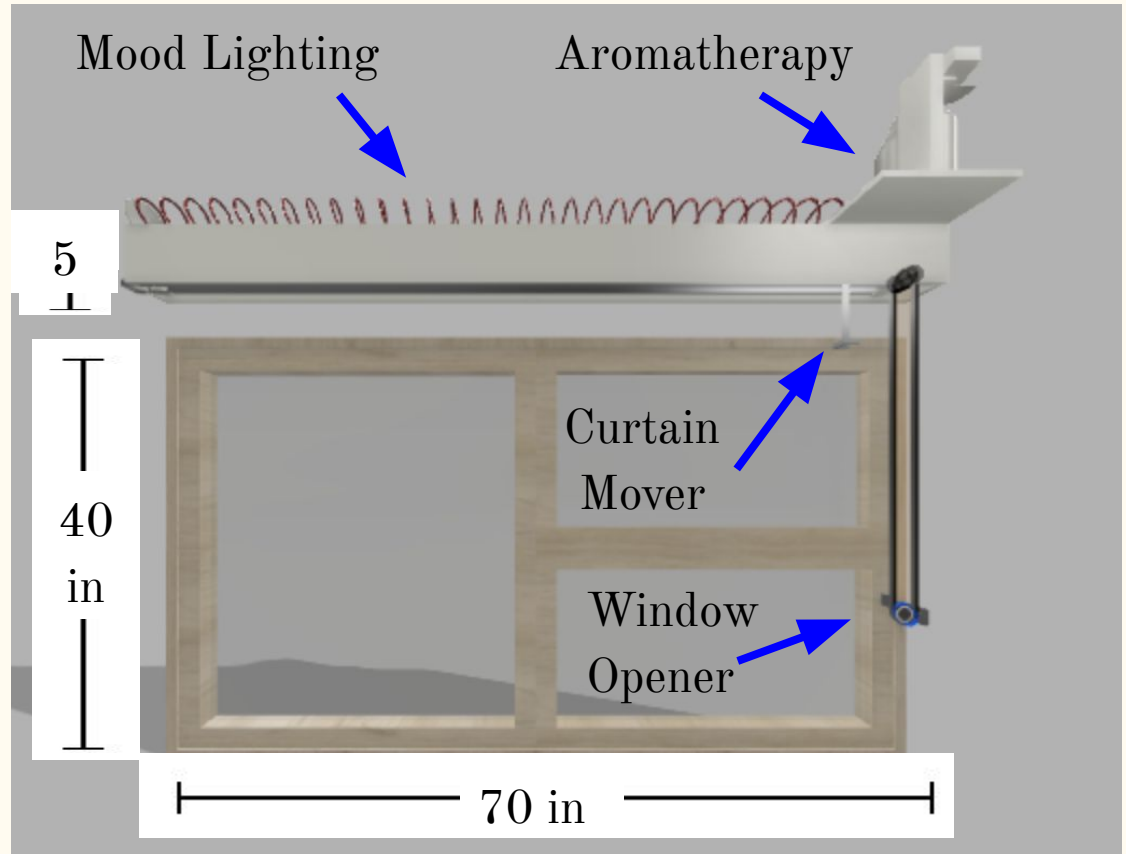
Proposed Design cont...

Motor to Operate Spray Mechanism
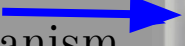
8 in

Two Pulley Systems
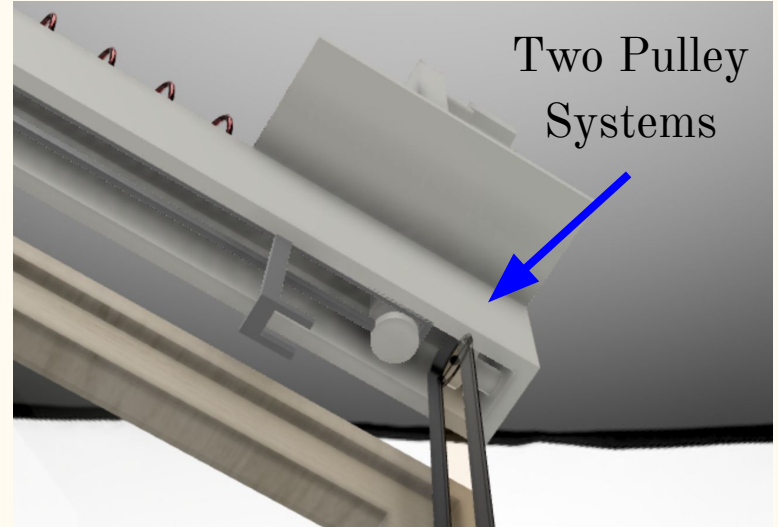
Estimated Budget & Materials

- Total: $62.40
- But LEDs provided
- $2.40 over budget

Arduino Read board: $19
USB cable: $4
Photo resistor / Photo cell: $.20
Jumper wire x20: $1
Resistor x10: $.50
9V battery: $1.2
Transistor NPN x2: $1
Ultrasonic Range Finder: $2
BreadBoard: $2
Lights: $12
Motor Controller L298N Dual bridge: $5
Button: $.15 or $.70
1/8" thick plywood x5: $3.50
Motor: $8
Wire x3: $.30
Gears: $2
Spray bottle: (3d printing?)

$2.40 over budget

Benchmarking

- Power Failure lights
- Electric window Openers
- Essential oil diffusers

(7)

By American Homesupplier ®
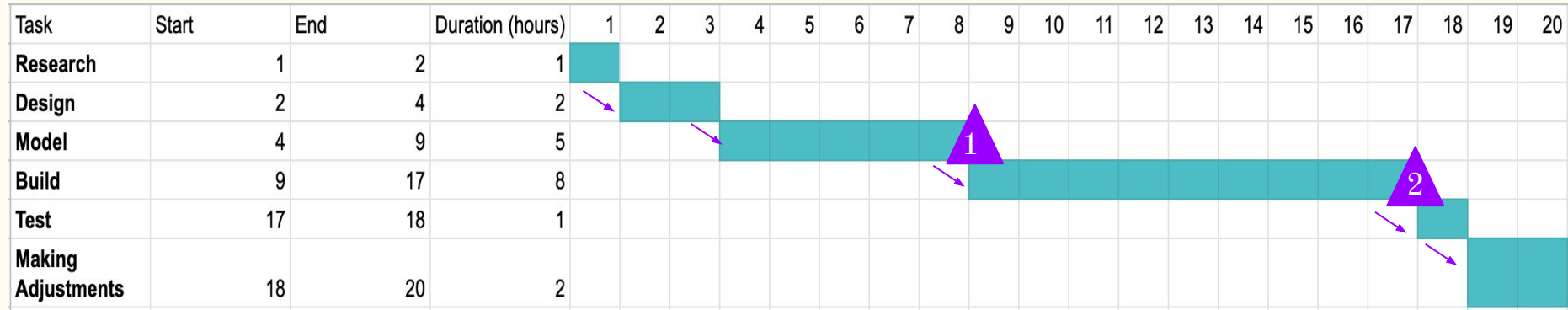(8)

(9)

Value Produced

- 7.3% and rising of Americans experience depression (3)
- Personalized, proactive aid
    - Aromatherapy (1)
    - Fresh air (5)
    - Light (4)
    - Schedule (2)
- Environmental: reduces energy consumption

(6)

Gantt Chart

Task	Start	End	Duration (hours)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Research	1	2	1																				
Design	2	4	2																				
Model	4	9	5																				
Build	9	17	8																				
Test	17	18	1																				
Making Adjustments	18	20	2																				

1) Conceptual design completed
2) Physical design completed

In the End...

- Product that creates a calm environment
- Reduces and prevents stress
- Promotes consumption of fresh air/essential oils

Why invest?

- Importance of a healthy mental state in a college environment.

(14)

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Thank you for your time