Senior capstone project proposal

Proposed Project Title: LED Mirror

Name: Email: Company or Organization:

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| --- | --- | --- |
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# Composition of Team

## End User/Client Expert Supervisor/Mentor

|  |  |  |  |
| --- | --- | --- | --- |
|  | Who is the Client? | Who is the Industry Advisor (if any)? | Who is the Faculty Advisor? |

|  |  |  |
| --- | --- | --- |
| University of Portland | N/A | Dr. Osterberg  Dr. Mansouri |

## Students

|  |  |
| --- | --- |
|  | How many students would make up this team and what disciplines would be required? |

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| --- |
| 3-4 students (EE students) |

# Budget & resources

**Tentative Budget**

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| --- | --- | --- | --- |
|  | Travel Expenses outside of Portland metro | Materials & Supplies to be purchased | Miscellaneous Other Costs |

|  |  |  |
| --- | --- | --- |
| N/A | $700 | N/A |

**Shiley Resources**

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| --- | --- | --- | --- |
|  | Technology (including specific software) | Equipment Requirements |  |

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| --- | --- | --- |
| Arduino | Soldering supplies |  |

**Shop** **Needs**

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| --- | --- | --- | --- |
|  | Technician Support | Space Required | Storage Requirements |

|  |  |  |
| --- | --- | --- |
| Case building (Jared Reese) | Workbench | locker sized |

**Safety**

**Does the project involve:**

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| --- | --- | --- | --- |
|  | Flammable/Combustible Materials | Chemical Hazards – acid, base, flammable, oxidizer | Hazards – electrical (more than 50 volts), non-ionizing radiation, respiratory |

|  |  |  |
| --- | --- | --- |
| N/A | N/A | N/A |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Stored Energy – springs, capacitors, batteries, ups, moving parts, falling objects, etc. | Ergonomic Hazards – excessive force, repetition, awkward postures, contact stress, | Mechanical -pinch, crush, strike, cut | Vacuum |

|  |  |  |  |
| --- | --- | --- | --- |
| LED  Power source | N/A | N/A | N/A |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Noise | Ionizing Radiation | Fall Hazards | Thermal – temperature, including cryogenic | Pressure | Other |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| N/A | N/A | N/A | N/A | N/A | N/A |

# PROPOSAL

# Overview

## Problem

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| --- | --- | --- |
|  | What is the problem that this project would be addressing? Where did the idea for this project come from (background)? |  |

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| Learning experience is the main goal.  Energy saving and public lighting  Can be used for artwork/cool display  Future Project inspiration |

## Concept

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| Define the boundaries of the project; What is the project intended to do? |

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| The project would display an image made of multi-colored LED’s which would mirror an object placed in front of the project. As you pass an object in front of a board or wall of LED’s and small infra-red motion sensors, the LED’s would track the movement and show an equivalent image made of light. |

## Deliverable or End Product

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| What is the expected end product or deliverable (specifications, working code, prototype, product, etc.)? What is the potential solution? |

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| The product would be a fully functional prototype one foot by two feet, with the ability to display general outlines of shapes and figures passing in front of it. |

## Impact

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| Why is this project important? What impact (either direct or indirect) will this project have on the world? |

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| This project would be an excellent learning experience for the team and would be an impressive project for the Shiley School of Engineering.  This project also has real world applications with noninvasive public security and energy savings. |