

## **Prototype Testing:**

**Engineering Metric Being Tested: Lifespan of Shortest Lived Part (METRIC REMOVED)**

### **Purpose:**

*The intent of line of experimentation is to conduct a lifetime assessment of the various components of the entire toilet.*

### **Goals:**

*The purpose of the study is to identify what components would be responsible for devaluing the entire product, in the eyes of the user. The desired resultant would be data-driven guarantees of the product's ability to last (in the harsh Haitian environmental conditions) for more than a year. That is, for all components of the product, both manufactured and store bought, to last for longer than a year. The marginal acceptable state would be a lifespan of 3/4th of a year.*

### **Conclusions:**

This engineering metric will be removed from the scope of this project for the following reasons:

- Fatigue testing would require a machine or process to be created with the purpose of subjecting the product to a repeated loading or motion. Creation of such a machine would require more resources than available to our MSD group
- Fatigue testing requires large amounts of time for multiple parts to be tested repeatedly. This could not be done in the time available before the end of the semester

### **Materials:**

A mechanism built in order to test components in a way similar to how they are used with the toilet.

### **Procedure:**

1. Set up mechanism with the component that will be tested
2. Run until failure of the component
3. Note the number of cycles before failure, and the method of failure
4. Repeat with multiple parts until a good sample of data is collected

### **Results:**

No results obtained

### **Analysis:**

No results obtained