

1 Introduction: Part 1

1.1 PROBLEM STATEMENT

Reverse engineering the brain is one of the National Academy of Engineers' 21st Century Challenges—a list of complex problems that are tightly intertwined with engineering and the future. Medical and technical personnel around the world are working towards solutions that will have applications in artificial intelligence, medical treatments, and prosthetics. The knowledge of this challenge is crucial to garnering public support and increased funding. Our goal is to inform and gain the interest of the general public and potential engineers through an interactive art exhibit to display on Iowa State University's campus.

1.2 INTENDED USERS AND USES

User	Key Characteristics (Persona)	Needs related to the project (POV / Needs statement)	Usage / Benefits
Iowa State University Personnel	Chrystal the curator <ul style="list-style-type: none">- Works at Iowa State- Manages art that is put up- Wants to put up art that will bring people to their museum- Enjoys art- Enjoys engineering- Likes Iowa State	- Needs to be easy to set up and maintain the art exhibit	<ul style="list-style-type: none">- Exhibit should bring people to their business- Setup and maintain exhibit
Youth	Yvonne the Youth <ul style="list-style-type: none">- Doesn't have as much experience- Has a bunch of energy- Is <i>chaotic</i>- Wants to play with something fun- Is easily impressionable	- Needs to be entertained and highly engaged	<ul style="list-style-type: none">- They are the future and are easily impressionable at a young age
Adults	Adrienne the Adult <ul style="list-style-type: none">- Lowkey	- Needs something that is interesting	<ul style="list-style-type: none">- Interact with the art exhibit for

User	Key Characteristics (Persona)	Needs related to the project (POV / Needs statement)	Usage / Benefits
	<ul style="list-style-type: none"> - Likes cool things - Tech literate - Some call them a “hipster” - Thinks that SIC is just so <i>neat</i> - Ames local 	but won't be too dumbed down	<ul style="list-style-type: none"> something interesting - Will want to learn more about the exhibit in-depth
Students	<p>Sally the Student</p> <ul style="list-style-type: none"> - Open option freshman - Unsure what field they want to go into - Technology savvy 	<ul style="list-style-type: none"> - Needs it to be engaging and informative - Needs something that shows the potential of engineering - Needs it to be straightforward enough to understand 	<ul style="list-style-type: none"> - Interacts with the art exhibit for fun or as part of an exploration of different majors - May be encouraged to pursue an engineering major
Professors	<p>Perry the Professor</p> <ul style="list-style-type: none"> - Knowledgeable about the exhibit's subject matter - Experienced professional - High expectations for the display 	<ul style="list-style-type: none"> - Needs exhibit to be a faithful representation 	<ul style="list-style-type: none"> - May refer their students to check out the exhibit

2 Appendices

2.1 CHALLENGE MIND MAP

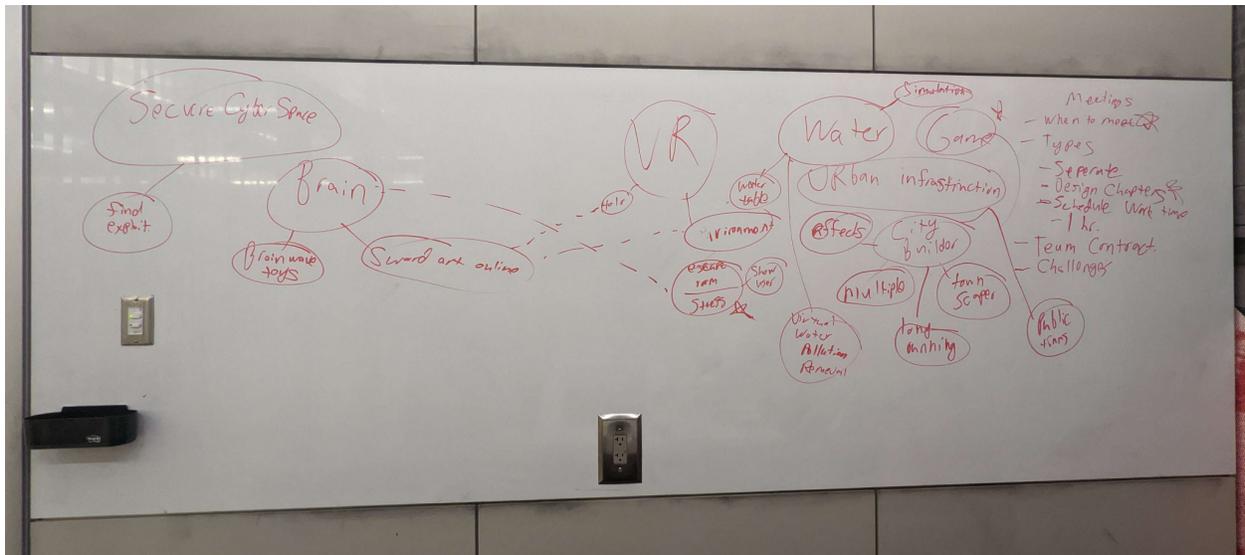


Fig. 1. Engineering Challenge Brainstorming Mind Map