IOWA STATE UNIVERSITY College of Engineering

Contextualization/Design Check-In

Project Team 10

Project Title : "Visualizing Probabilistic Whereabouts of Moving Objects" Advisor and Client: Dr. Goce Trajcevski

Project Overview

For our project we are going to design & create a web-based application for visualizing the probabilistic whereabouts of moving objects.

- Given a dataset of positions varied with time, use a set of tools to express the probability of the object existing at a given location in between any two samples (Generalize to chains of samples).
- Provide users with an interface that enables the user to enter queries and visualize results.



Plotted Data on a Map



Visualizing Whereabouts in Space

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т	echnical Co	omplexity Anal	ysis
	Interna	al Complexity	
Our team is comprised of CPR E and EE majors (no SE majors) for a software- heavy project Webware	Utilizes several components and has a complex software architecture.	Have a small team of anly 4 and ong 3 members with coding experience	
	Extern	al Complexity	
	Handling large data sets from user input can be difficult	Type of systems and visualization tool has never been created before, so it technically compete from a competitive	Large data sets and databases are complex. There are many moving parts that need to work together in the software.

Technical Complexity



Journey Map

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Human

Design's Addressing of User Needs

- <u>User accounts</u> dataset privacy
- Dataset upload delimiter based parsing
- <u>Whereabout queries</u> multiple algorithms & query types
- <u>Visualization</u> 2D with map overlay or 3D white space background

Possible Improvements

- <u>Dataset upload</u> open source libraries for parsing complex file formats
- Dataset formatting UI feedback and automated format suggestions



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Economic

- No existing tool does the same type of visualization
- Does not require programming by the user
- Can apply to many types of data sets
- May not have as strong of a UI
- Limited styles of data sets expected





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Technical

- Team is EE and CPR E, which is difficult for SW based project
- Involves data storage and manipulation
- Uses complex software architecture



Technical Complexity

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