

Table 1: The full list of system requirements linked to their assigned requirement ID.

Requirement ID	Description
RDAT1	The system should be able to capture low level user logs.
RDAT2	The system should be able to store those logs as a user trace.
RDAT3	The framework should provide aggregated information about the task or tasks the traces cover.
RDAT4	The framework should provide information about each task separately.
RDAT5	The visualization system designer should be able to save snapshots of their visualization system at any point
RDAT6	The framework should store information about visualized information such as number of violations or execution times.
RDAT7	The framework should provide statistics about the progress of the visualization system
RANL8	The visualization system designer should be able to generate a statechart based by providing a system URL.
RANL9	The visualization system designer should be able to filter all the interactions he is interested in.
RANL10	The visualization system designer should be able to cluster all the interactions he is interested in.
RANL11	The framework should be able to store detailed info of a user trace (e.g., times an interaction has been performed, execution time, latency thresholds violations).
RANL12	The framework should be able to replay a specific user trace.
RANL13	The visualization system designer should be able to replay portions of the trace he's interested in by inserting a starting timestamp start and an ending timestamp.
RANL14	The system should update the displayed information about the selected subset after a user trace has been added or removed by the user.
RANL15	The framework should compute the degree of correctness in the execution of each task.
RANL16	The framework should compute and visualize the standard deviation in the execution time of the tasks for the selected traces.
RANL17	The visualization system designer should be able to identify a description of paths that will be considered ideal.
RANL18	The designer should execute the ideal path on the actual system and retrieve the ideal user traces for the state chart visualization.
RANL19	The visualization system designer should be able to visualize and filter the traces that differ the most from the ideal path.
RANL20	The framework should check if any user traces relate to the ideal paths based on a degree of overlap and by matching their sequence of actions.

RANL21	The framework should provide suggestions on new ideal paths based on user behaviour (e.g., the most common way to achieve a task amongst user traces).
RANL22	The visualization system designer should be able to select a snapshot and analyze it.
RANL23	The visualization system designer should be able to compare the current state of the system with the older ones.
RVIS24	The generated state chart should provide an overview of all possible interactions.
RVIS25	The visualization system designer should be able to visualize a previously generated state chart.
RVIS26	The system should provide a clear breakdown of interactive elements and additional information about each one of them such as path characteristics.
RVIS27	The visualization system designer should be able to see detailed information about the selected user trace (e.g., times an interaction has been performed, execution time, latency thresholds violations).
RVIS28	The framework should be able to display anomalies presented by the visualization system.
RVIS29	The framework should display the coordination between the replay of the user traces and the interaction space.
RVIS30	The visualization system designer should be able to visualize the subpart of the trace he's interested in.
RVIS31	The visualization system designer should be able to see visualized information about the selected subset of user traces such as their aggregated behaviour.
RVIS32	The filtered results should be presented on the state chart, distinguishing them from the rest of the interaction space (e.g., by highlighting them).
RVIS33	The framework should visualize the degree of correctness in the execution of each task.
RVIS34	The visualization system designer should be able to see how different users accomplished a certain task performed on the visualization system.

RVIS35	The visualization designer should be capable of representing an overview of the task coverage on the visualization of the interaction space.
RVIS36	The framework should visualize the resulted user traces on the interaction space by, e.g. highlighting them.
RVIS37	The visualization system designer should be capable to visualize a history of the snapshot characterized by different statistics.
RINT38	The statechart should be interactable: can be zoomed, panned or dragged.
RINT39	The visualization system designer should be able to select a single user trace captured by the framework.
RINT40	The visualization system designer should be able to find a trace in which he could be potentially interested in (e.g., a trace that has many violations in latency thresholds).
RINT41	The visualization system designer should be able to select multiple user traces at the same time.
RINT42	The visualization system designer should be able to select and see information about a specific trace of the subset.
RINT43	The visualization system designer should be able to add or remove user traces from the selected subset.
RINT44	The visualization system designer should be able to find a subset of traces in which he could be potentially interested in (e.g., a subset that has many violations in latency thresholds).
RINT45	The visualization system designer should be able to filter user traces based on users' details (age, gender, study title).
RINT46	The visualization system designer should be able to filter user traces based on traces' characteristics (e.g., # times an interaction has been performed, duration, latency thresholds violations).
RINT47	The visualization system designer should be able to filter user traces based on more than one criteria at the same time.
RINT48	The visualization system designer should be able to see all the user traces specific to a single task and should be able to split them based on a specific task.
RINT49	The visualization system designer should be able to see all the user traces specific to a single task.



System Website

Generate Statechart

Visualize Statechart

User Traces

Replay Traces

User Testing

Loaded User Traces 8

<input type="checkbox"/>	Name	Events	Timestamp	Duration
<input type="checkbox"/>	User Trace 1			79
<input type="checkbox"/>	User Trace 2			120
<input type="checkbox"/>	User Trace 3			90
<input type="checkbox"/>	User Trace 4			135
<input type="checkbox"/>	User Trace 5	3	2023-11-18 19:30:00 +01:00	55

- Filter by V
- Performance

Duration

Events

Filter by Duration

From:

seconds

To:

seconds

Cancel

Apply



System Website

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Visualize Statechart

User Traces

Replay Traces

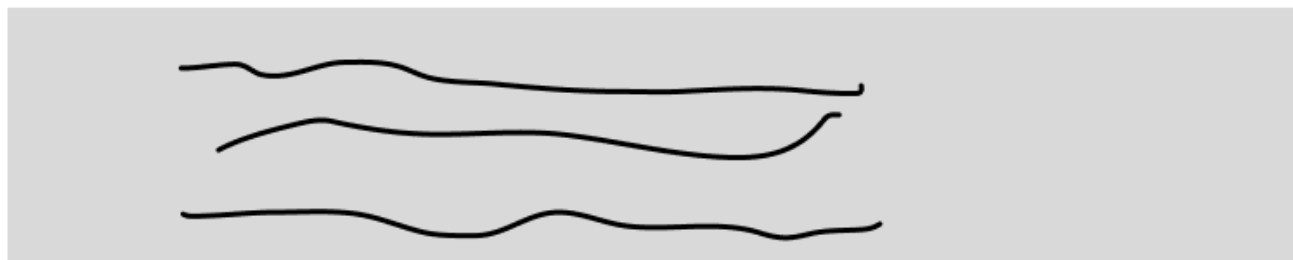
Generate User Testing



System Name


Cancel

Generating Statechart...





System Website

Generated Statechart 

Visualize Statechart

Replay Traces

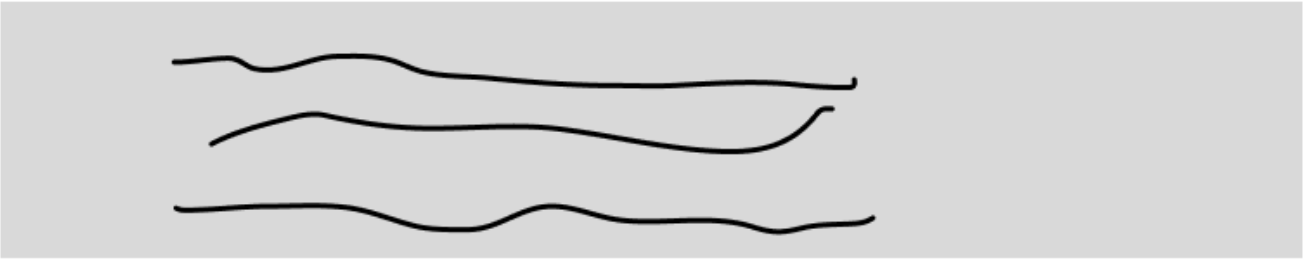
Generate User Testing



System Name

Cancel

Replaying User Traces



System Name Workspace Name



System Website

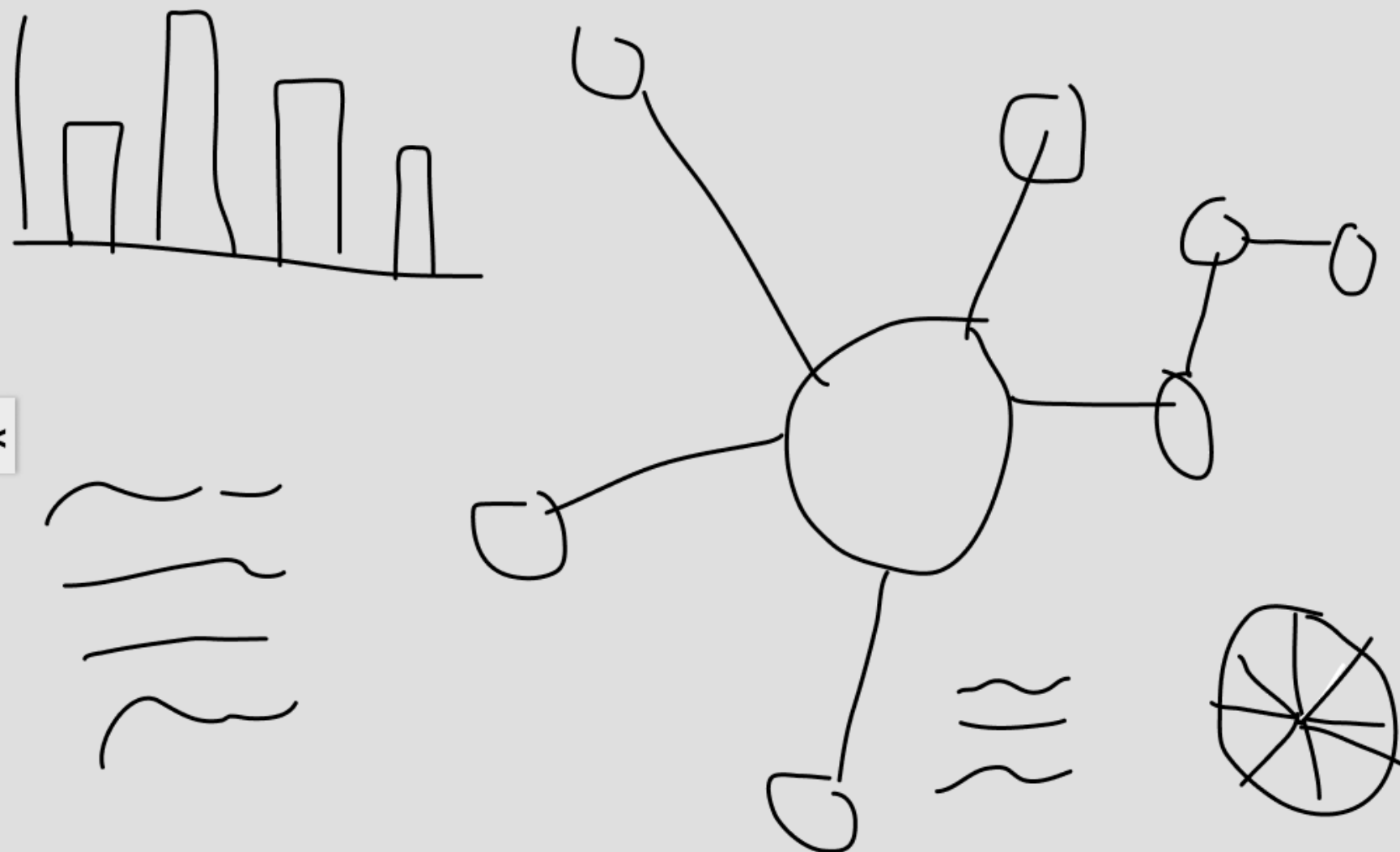
Generate Statechart

Visualize Statechart

User Traces

Replay Traces

Generate User Testing





System Website

Generate Statechart

Visualize Statechart

User Traces

Replay Traces

User Testing

Loaded User Traces 8

Filter by V

<input type="checkbox"/>	Name	Events	Timestamp	Duration (seconds)
<input type="checkbox"/>	User Trace 1	4	2023-11-15 12:00:00 +01:00	79
<input type="checkbox"/>	User Trace 2	6	2023-11-15 17:30:00 +01:00	120
<input type="checkbox"/>	User Trace 3	4	2023-11-16 09:15:00 +01:00	90
<input type="checkbox"/>	User Trace 4	7	2023-11-17 12:00:00 +01:00	135
<input type="checkbox"/>	User Trace 5	3	2023-11-18 19:30:00 +01:00	55



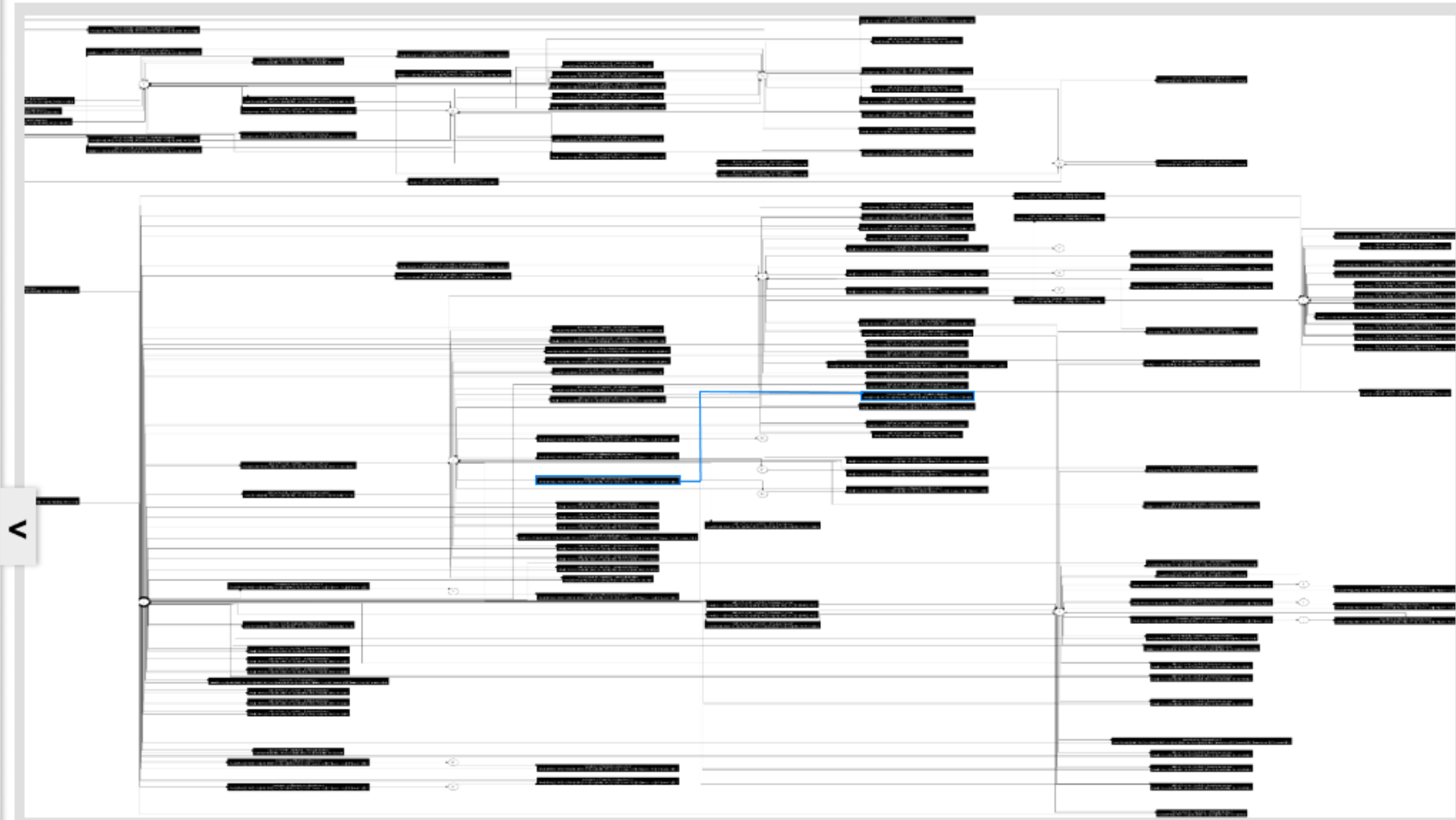
System Website

Generated Statechart ☒

Visualize Statechart

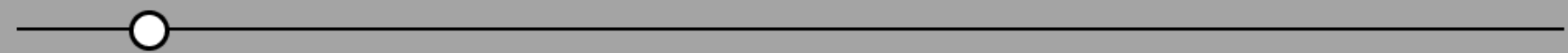
Replay Traces

Generate User Testing



Replaying User Traces

Replaying event 36 or 1050...





System Website

Generated Statechart ☒

Visualize Statechart

Replay Traces

Generate User Testing



Replaying User Traces

Replaying event 35 or 1050...





System Website

Generated Statechart

Visualize Statechart

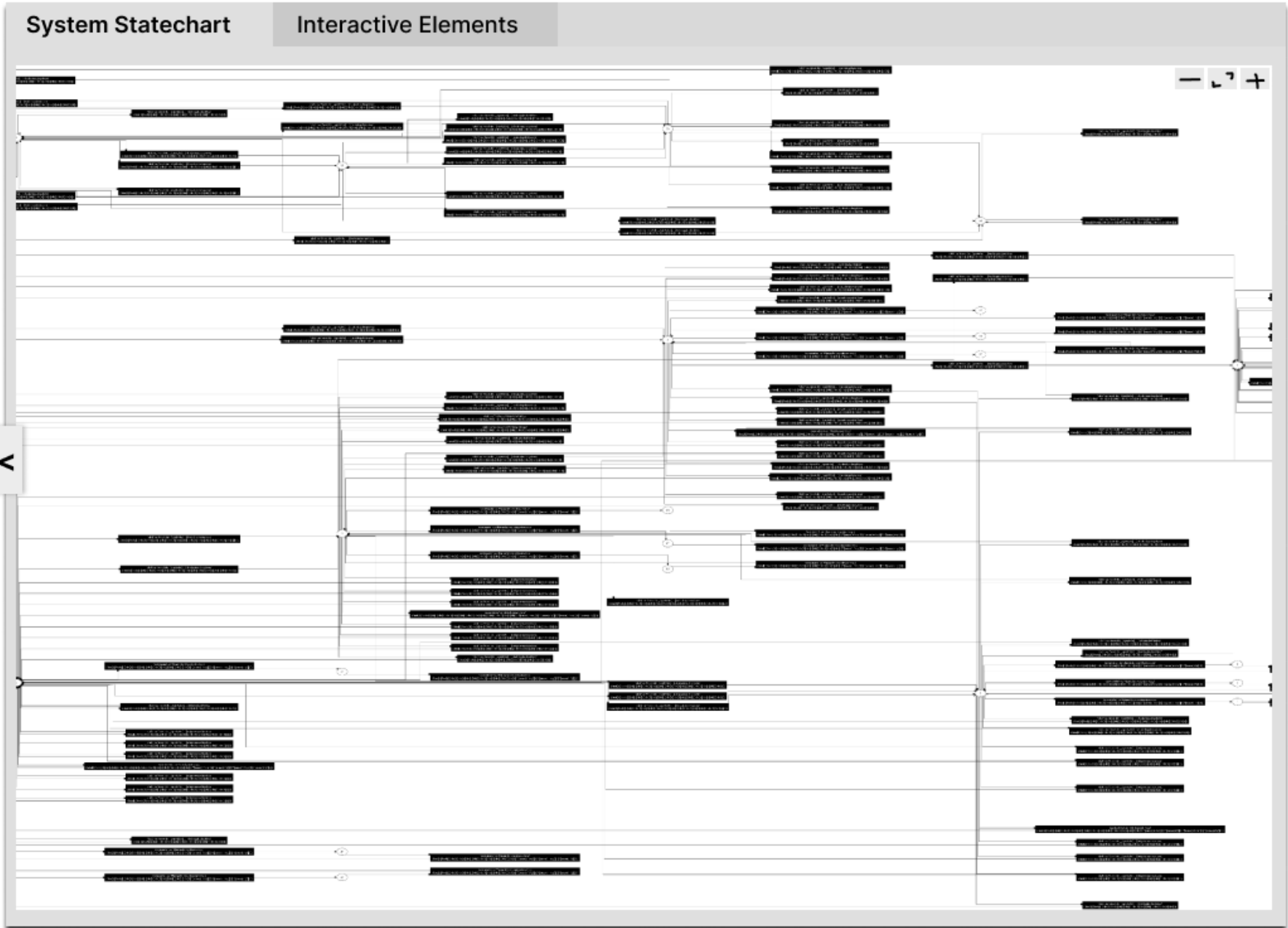
Replay Traces

Generate User Testing





- System Website
- Generated Statechart ☒
- Visualize Statechart
- User Traces
- Replay Traces
- Generate User Testing





- System Website
- Generated Statechart
- Visualize Statechart
- User Traces
- < Replay Traces
- Generate User Testing

System Statechart

Interactive Elements

Number of Interactive Elements found in the system: 11

Multitude	Type	Path Characteristics
3	Sliders	V
6	Buttons	V
2	Graphs	V