

# Team 6: Infectious Disease

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# Scenario 1: Intuitive Usability

- Goal: Determine how well users can use the app without outside instruction
- Users were given:
  - A general description of the app and its purpose
  - The goal behind the scenario
  - A list of tasks to build a simple simulation
- Users were asked to:
  - Think out loud
  - Change grid size
  - Place people and objects on grid (mix of infected and clean)
  - Remove objects from grid
  - Change binary parameters
  - Run simulation for 2 days

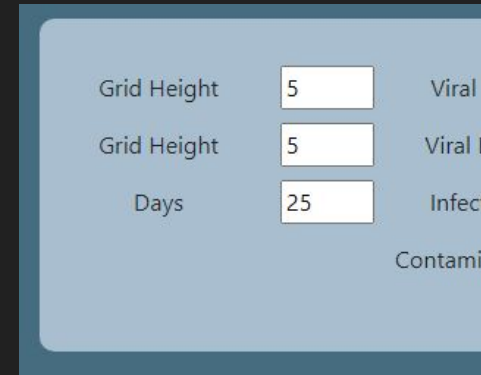
# Scenario 1: Placing Objects

- All 6 participants noticed the tutorial
  - Only 2 viewed it prior to beginning the tasks
- Only 1 participant quickly found how to place people on the grid
  - The remainder tried a few different techniques
- All participants confused by 'Viral Amount'




# Scenario 1: Time Controls

- A few users did not set the 'days' parameter
  - Left it at default 25
  - Stopped simulation manually after 2 days
- A few also expressed uncertainty at how long a day takes
  - No visibility of hours
  - Users see the people moving but the time staying the same
- Most users utilized the speed controls
  - Worked well



# Scenario 2: Parameter Exploration

- Goal: Determine if users can discern a difference when they change parameter values
- Users were given:
  - A general description of the app and its purpose
  - An open ended prompt
- Users were asked to:
  - Think out loud
  - Run a few short simulations
  - Change parameter values each time
  - Observe the effect of each
  - Save the results from one simulation



The screenshot shows a control panel for a simulation. It features several input fields for parameters and a set of control buttons. The parameters are arranged in a grid-like fashion. On the right side, there are four rows of buttons, each with a status indicator (a red 'Off' button) and a primary action button (green, blue, or red). A teal 'Help' button is located at the bottom right.

Grid Height	<input type="text" value="5"/>	Viral Threshold	<input type="text" value="100"/>	Masks	<input type="button" value="Off"/>	<input type="button" value="Start Simulation"/>
Grid Height	<input type="text" value="5"/>	Viral Production	<input type="text" value="1.1"/>	Sanitization	<input type="button" value="Off"/>	<input type="button" value="End Simulation"/>
Days	<input type="text" value="25"/>	Infected Period	<input type="text" value="10"/>	Death	<input type="button" value="Off"/>	<input type="button" value="Reset Simulation"/>
		Contamination Period	<input type="text" value="2"/>			<input type="button" value="Help"/>

# Scenario 2: Observations

- Most users experimented with masking and sanitation
  - Neither of these parameters were implemented yet
  - Some reported observable effects regardless, others did not
- Users asked how to tell if people had died
  - This was not implemented yet
- Most users did not view the results page except when they wanted to save
  - Reset right away
- Resetting the simulation cleared the grid
  - Most users wanted to return to initial configuration

# Notable Bugs

- Person or object appears on different square than clicked
  - Happened to multiple participants 1 or 2 times
  - No immediately obvious cause
- UI Scaling issues for one user
  - See images to the right
- Person was unable to be infected from surface
  - Occurred for 1 participant
  - One object with 100 virons, one object with 90
  - Person either only obtained 90 (and stayed there) or obtained 100 and then fell to 90
    - Throughout frequent contact with the infected object
  - Reproducible under these conditions



# Recommended Changes

- Force viewing of the tutorial
  - Even if the user only skims it, they may obtain some information
- Change tile type dropdown to radio buttons
  - This will present all options to the user at once
- Display viron counts as a tooltip on the grid
  - Users struggled to tell if a person or object was partially infected
- Present results immediately upon simulation completion
  - This will allow users to see a more detailed analysis without additional action needed
- Allow users to reset without clearing the grid
  - More conducive to experimental procedure