

Experiment Procedure

Thermal Comfort Study

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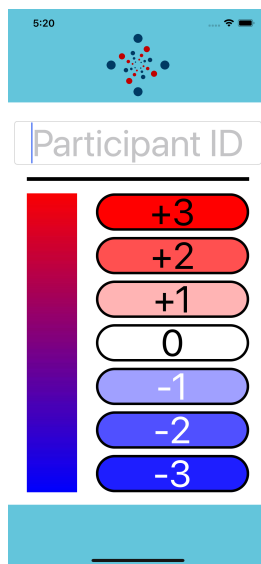
10th March, 2020

Before the Study

Each participant will be assigned a participant ID by the Principal Investigator. This participant ID will be used to anonymize the thermal comfort responses as they are stored in the laboratory server. The Principal Investigator will maintain an encrypted file for each participant ID.

During the Study

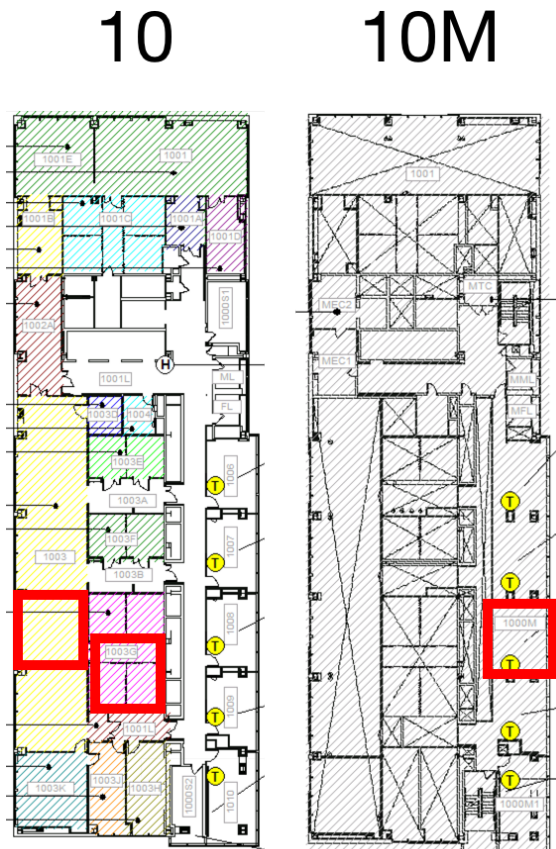
The participant will be assigned to a specific location within the testbed in view of an RGB-thermal camera. The participant is free to move around their specified location, which will be marked on the floor with blue tape. A mobile device will be provided with an application installed on the device. The application has a single screen, as shown below:



The participant can input their Participant ID, given before the study, into the field at the top of the screen. Below are 7 buttons corresponding to the different levels of thermal comfort as described by the ASHRAE 55 standard [1]. During the study, the participant can input their thermal comfort by pressing one of the 7 buttons.

Experiment Information

The study will be conducted over the course of two weeks. Each study session will be one hour. We have three testbeds setup in the 10 and 10M Floors of the Northwest Corner Building. The floorplan and the testbeds (in red) are shown:



The testbeds will each be setup with an RGB-thermal camera monitoring the testbed from a height between 8-10 ft. The RGB-thermal images will be encrypted and transmitted to a laboratory server for processing. The images are immediately deleted after processing, and are not saved at any point in the pipeline.

References

[1] Standard, A. S. H. R. A. E. "Standard 55-2004." *Thermal environmental conditions for human occupancy* 3 (2004).