Fitt's Law Report

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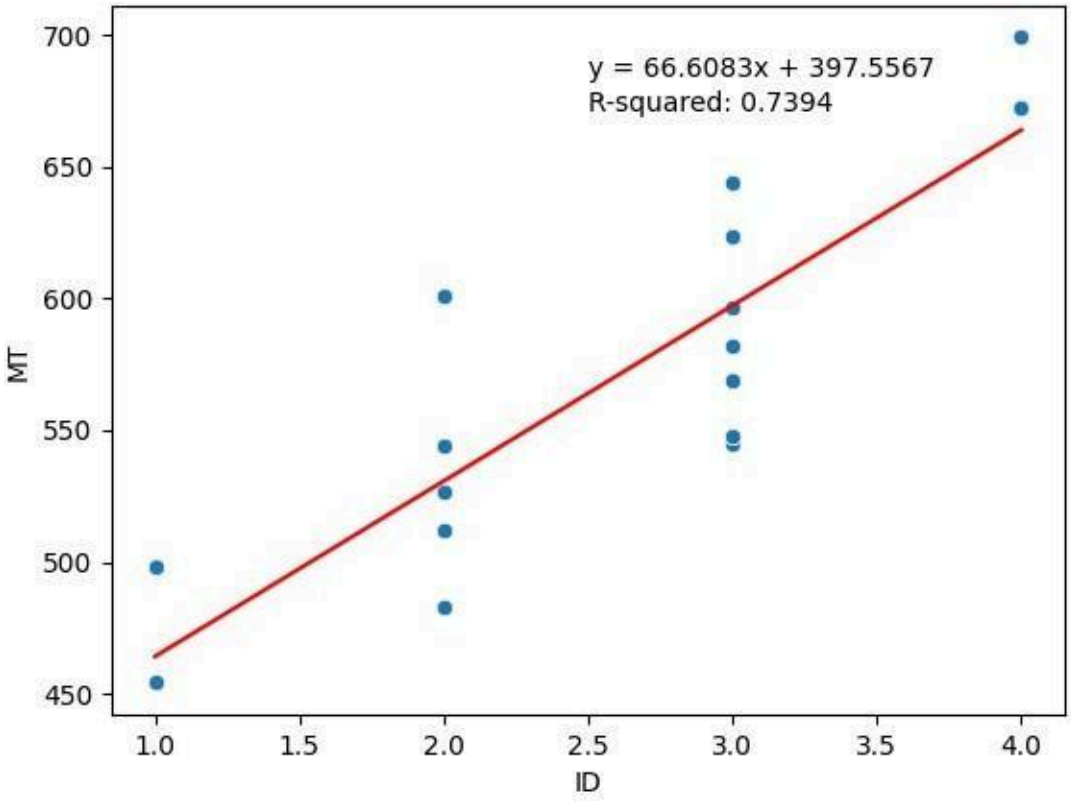
Protocol:

The experiment conducts 320 trials where every trial a square (also known as the target) with a randomly selected size of 80,120,160, or 200 pixels is placed somewhere on the screen, and the person playing has to click on the target as fast as possible. The initial position of the cursor is reset every trial. Each trial records the trial number, the target size in pixels, the target's starting x position, the distance the mouse traveled in pixels, the time it took to click the target in milliseconds, and finally the number of missed clicks before clicking on the target. In this case the target size and the target starting x position are the independent variables while the distance traveled and time are independent variables. The misses could be considered a confounding variable as it can be effected by the dependent and independent variables, else it would be dependent.

Results:



This is a plot containing the linear regression we applied on our data. We got a line of

$y = 66.6083x + 397.5567$ with an R^2 of 0.7394. We were pretty surprised that we got that low of an R^2. We were also weren't sure why our ID went from 1-4 instead of 1-8. All of the participants in the experiment were all gamers, so we felt that might have influenced the data to some capacity.

Depending on what the directions are, we might see different results. For example, if the tasks are performed on a trackpad instead of a mouse. We might have slower results. However, we should still see the linear line that tracks the a similar regression line to the one from FITT's study as well as ours.

The results were actually pretty similar with a few outliers. Most participants were surprisingly accurate. This again might come from the fact that the participants are well attuned to mouse clicking. As well as aim games such as aimlabs. There were outliers that we removed from our results as the time to click was extraordinarily long. This was due to the participant clicking out of the window of the program. Another thing was mouse resets. Almost all of the participants complained about the mouse resetting itself. They had to often adjust their mouse on their mousepad.

Problems we encountered:

Coding the game itself took a while especially since we didn't fully know how to handle the informed consent, so we contemplated our tech stack for a while. Another thing of note is that all of the participants were all friends of Nate from all across the world.

While we didn't have any issues finding participants, having little to none of them be in person plus all the potential external factors from having people all around the world play probably didn't help with getting high accuracy data. They are also all gamers, and play mainly fps games, possibly contributing to better scores than others.

Code:

Here is a link to our github. Otherwise a zip of the repository will be included alongside this document. The repository also contains all of the data we collected, as well as anything useful related to the project.