

Submitted by Group 51

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DIS1 WS 19/20 Assignment 1

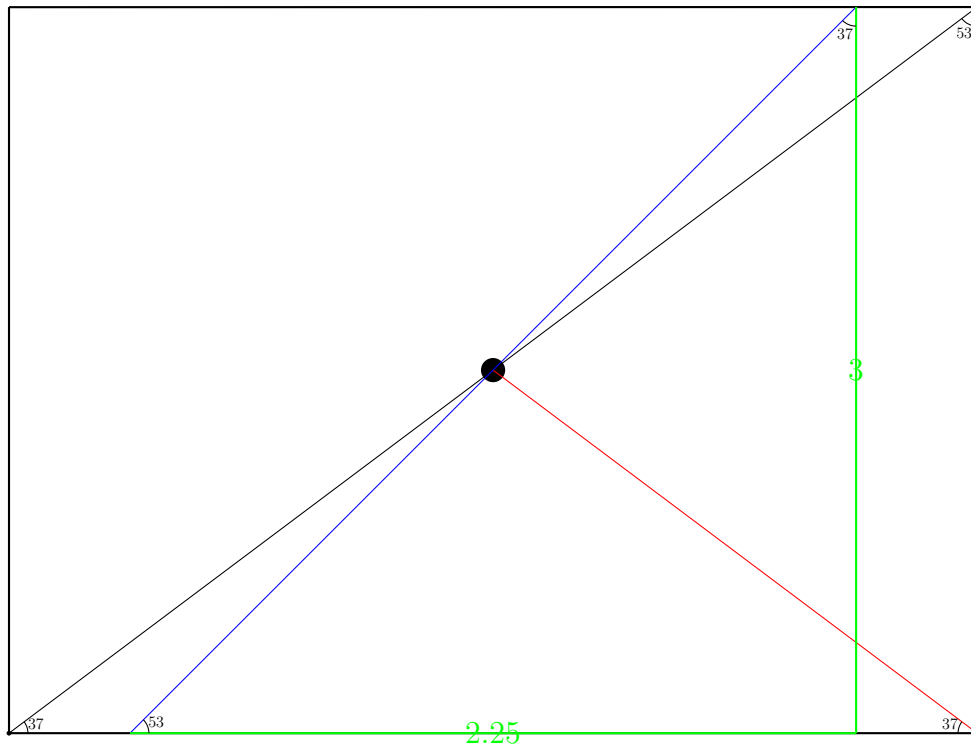
Predicting Human Performance using Fitts' Law

1.

a)

- Distance from S to F ,  $D_{SF}$ : 25 cm
- Target Width for S to F ,  $W_{SF}$ : 5 cm (  $\sqrt{3^2 + 4^2} = 5$  )
- Target Width for S to F ,  $W_{SF}$ : 3.75 cm
- Distance from F to C ,  $D_{FC}$ : 32 cm
- Target Width for F to C ,  $W_{FC}$ : 8 cm

Shannon's formula for reference:  $T_{pos} = a + b * \log_2(\frac{D}{W} + 1)$   
given values: a = 0 ms, b = 100 ms/bit



Length of the blue line (that is perpendicular to red line) is 3.75 cm.

- Movement Time for S to F ,  $MT_{SF}$ :  
 $MT_{SF} = 0ms + 100 \frac{ms}{bit} * \log_2(\frac{25}{5} + 1) = 258.49625007211563 \text{ ms}$
- Movement Time for F to C ,  $MT_{FC}$ :  
 $MT_{FC} = 0ms + 100 \frac{ms}{bit} * \log_2(\frac{32}{8} + 1) = 232.19280948873623 \text{ ms}$
- Movement Time for S to C ,  $MT_{SC}$ :  
 $MT_{SC} = 258.49625007211563 + 232.19280948873623 = 490.6890595608519 \text{ ms}$

b) Using fingers (b) instead of mouse (a) causes the movement time to: **DECREASES**.

$$r1 = 100 + 50 * \log(25.0/5 + 1, 2)$$

$$r2 = 100 + 50 * \log(32.0/8 + 1, 2)$$

$$r1 + r2 \rightarrow 445.3445297804259 \text{ ms}$$

2. Sketch of your redesign:



How your redesign minimizes the selection time:



3.

- Argument #1:
- Argument #2: