

Course Name : **Computer Architecture**
Assignment : **Assignment 0**
Time Taken By Infiltrator

Let us first look at the advantages and disadvantages of various aspects like altering width of the war zone, altering probability for a sensor to be on at any given time, having different priorities of decision making for differently oriented sensors by the infiltrator and so on.

Firstly let us look at the effect caused by altering the width:

Increased width means increased number of barriers to be crossed by the infiltrator. So, we can surely say that it results in longer times for him to reach the defending country.

Effect caused by altering the probability for a sensor to be on:

Increased probability for a sensor to be on means lesser number of chances for the sensors around and at the place of infiltrator to be off. And hence chances of him crossing a particular barrier will become less. So, we can surely say that it again results in longer times for him to reach the defending country.

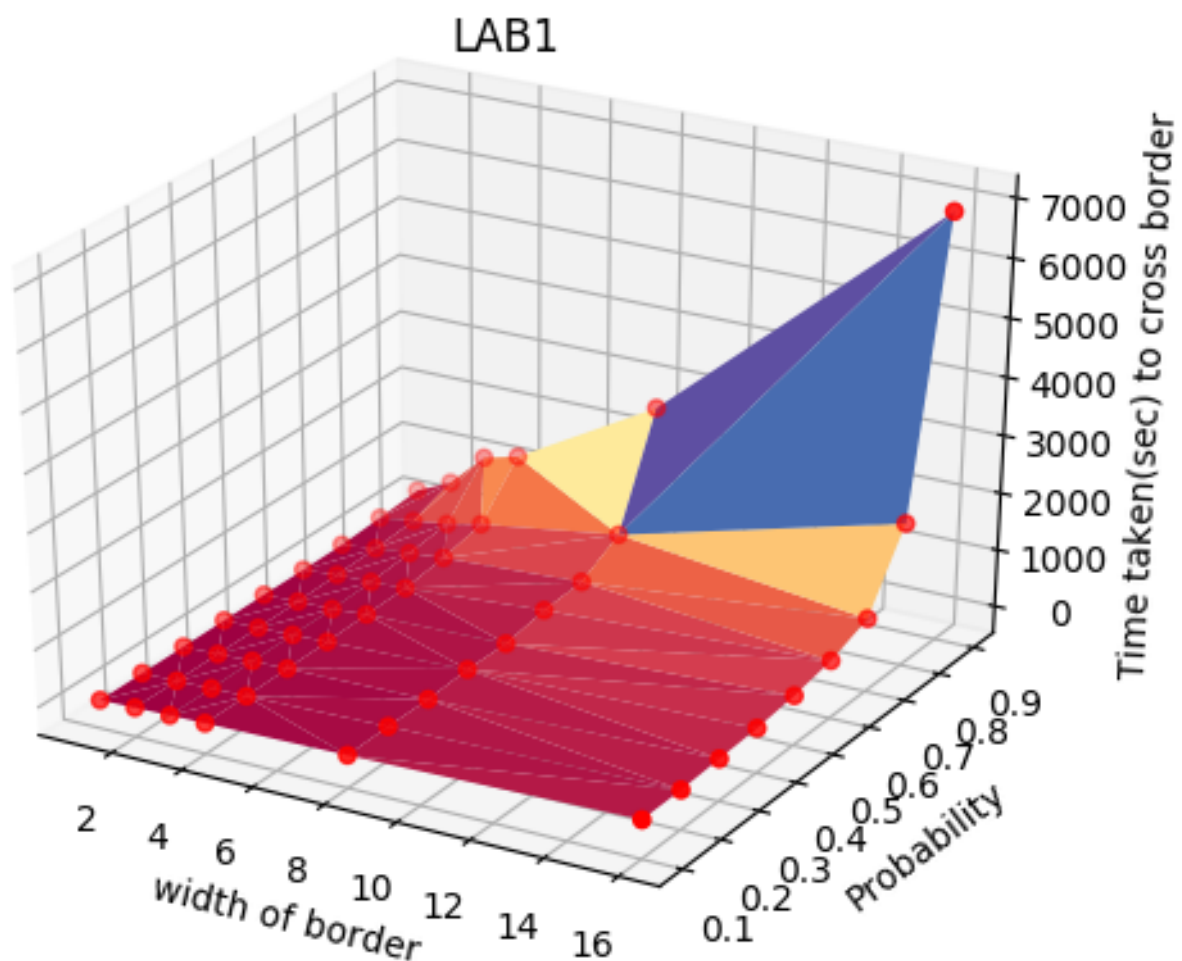
Effect caused by having different priorities of decision making for differently oriented sensors:

If the priority for the infiltrator about where to go next is same for all the 8 positions around him, then there will be ambiguity in his destination. He might just be crawling around in some place at the beginning of the war zone itself. So, we definitely

have to have more priority for the areas around him, though it doesn't matter if we have same priority for all the three positions in front of him as the length is theoretically infinite, and lower priorities for areas beside him (can be zero) and much lower priorities for areas behind him (can be zero as well).

Now with this knowledge, the times for different widths and different probabilities have been computed and the observations are noted below:

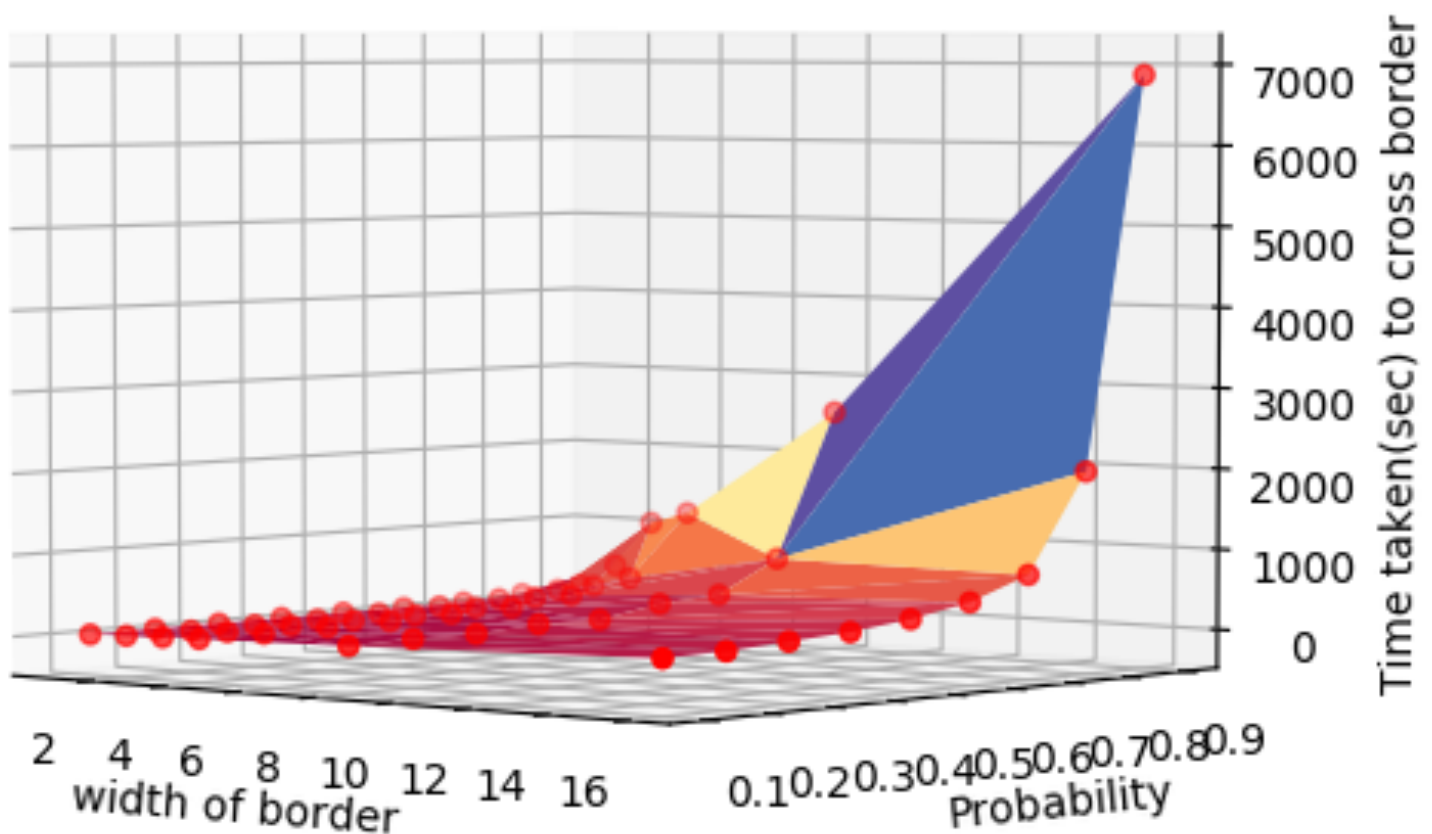
-> The time taken for lower widths like 1 or 2 is pretty small with all the probabilities though it is relatively large for high probabilities like 0.8 and 0.9.



-> The time taken for medium widths is as low as before for smaller probabilities but becomes much larger for higher probabilities.

-> The time taken for higher widths is highly varying for different probabilities.

LAB1



-> The trend is always increasing but the variation becomes larger every time.

