













Fig. 11 – Processed cells comparison between 3 algorithms

## VI. CONCLUSION AND FUTURE WORKS

Nowadays, there are many developed path-finding algorithms. The A\* is one of the most used one in many fields. Until now, there are many version of A\* such as IDA\*, D\*, LPA\* and Theta\*. In the Theta\* algorithm, the solution path is more natural, faster but less optimal than weighted h-values version of Theta\*. In our experiment, we found a method to increase the performance by applying the dynamic weights, hierarchical method and equal condition. As the result of our experiment, we find that our modification way make the path-finding process run faster but sometimes more optimal than Theta\*. Applying Dynamic Weight with hierarchical method make improvement on the solution path and computation cost comparing to the Nash et.al's Theta\* Algorithm. In future work, we will apply dynamic weight on different map areas based on its complexity based on the idea of Wilt et.al in his article [18].

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