PUNE INSTITUTE OF COMPUTER TECHNOLOGY

DHANKAWADI, PUNE – 43

UG SEMINAR ABSTRACT
Academic Year: 2019-20

DEPARTMENT: COMPUTER ENGINEERING

Seminar On: Algorithms

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1. Name of The Topic: Performance Comparison of Three Closely Related Pathfinding Algorithms on US Road Network

2. Topic wise contents:
   i. Abstract
   ii. Keywords

3. References Used:

   [1] E. Dijkstra, A note on two problems in connexion with graphs, Nu777 merische Mathematik 1 (1959) 269–271
   [2] Cui, Xiao and Shi, Hao (2011) A*-based Pathfinding in Modern Computer Games. *International Journal of Computer Science and Network Security*, 11 (1). pp. 125-130. ISSN 1738-7906
   [3] Botea A, Muller M, and Jonathan S. Near optimal hierarchical path-finding. J Game Dev 2004; 1: 7–28.
   [4] Javaid, M.A. Understanding Dijkstra Algorithm. *SSRN Electron*. J. 2013.
   [5] Alija, A.S. Analysis of Djikstra's and A* Algorithm to Find the Shortest Path. Master's Thesis, *Universiti TunHussein Onn Malaysia, Johor, Malaysia*, September 2015.
   [6] Ma, H.; Koenig, S.; Ayanian, N.; Cohen, L.; Honig, W.; Kumar, T. K. S.; Uras, T.; and Xu, H. 2016a. Overview: Generalizations of multi-agent path finding to real-world scenarios. *In WOMP Workshop at IJCAI,* Available at *http://idm-lab.org/publications.html.*
   [7] Shu-Xi, W. The improved dijkstra's shortest path algorithm and its application. *Procedia Eng*. 2012,29, 1186–1190
   [8] Eneh, A. H., & Arinze, U. C. (2017). COMPARATIVE ANALYSIS AND IMPLEMENTATION OF DIJKSTRA'S SHORTEST PATH ALGORITHM FOR EMERGENCY RESPONSE AND LOGISTIC PLANNING. *Nigerian Journal of Technology,* Vol. 36 No. 3 (2017). *https://doi.org/10.4314/njt.v36i3.30*
   [9] Foed, D., Ghifari, A., Kusuma, M. B., Hanafiah, N., & Ganuwan, E. (2021). A Systematic Literature Review of A* Pathfinding. *Procedia Computer Science,* 179, 507–514. *https://doi.org/10.1016/j.procs.2021.01.034*

[10] Ade Candra, Mohammad Andri Budiman, & Rahmat Irfan Pohan. (2020). Application of A-Star Algorithm on Pathfinding Game. *Journal of Physics: Conference Series,* 1898. *https://doi.org/10.1088/1742-6596/1898/1/012047*

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REMARKS BY UG SEMINAR CO-ORDINATOR:

Date: _____

                                                        UG Seminar Coordinator

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Abstract: Pathfinding is one of the most classical problem in graph theory, which aims to find the path between two nodes in the network. Pathfinding problem has very wide range of application in field of computer games, network routing algorithms, artificial intelligence and so on. This seminar work represents comparative analysis of three closely related pathfinding algorithms which are slight modification over each other – Dijkstra, A* and HPA*. The theoretical analysis includes time and space tradeoffs whereas in practical performance analysis the algorithms are tested on road network of three states in US. Seminar work also includes graphical representation of analysis to give great depth of result to the audience.

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REMARKS BY UG SEMINAR GUIDE:

Date: _____

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