Wi-Fi Received Signal Strength-based Indoor Localization System Using K-Nearest Neighbors fingerprint integrated D*algorithm

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Abstract*—The indoor localization system is essential since the Global Positioning System cannot give an accurate position indoors, especially when several floor plans are considered. Wi-Fi received signal strength becomes an alternative indicator for indoor localization systems. The experiment proposed a localization system created by integrating and working between the K-Nearest Neighbors algorithm and the D*algorithm. The result illustrates the optimal path from the start point to the target point by avoiding performing exceptionally well. The K-Nearest Neighbors algorithm provide the result for localization of the starting point with Root Mean Square Errors of displacement at 1.190 meters, 2.491 meters, and 1.363 meters of X-Axis Y-Axis, respectively. The proposed indoor localization system can have various applications considering different environmental factors in different applications, such as the size of unmanned aerial vehicles when applying indoor unmanned aerial vehicles.

***Keyword*— Indoor localization, Wi-Fi Received Signal Strength Indicator, K-Nearest Neighbor, D*Algorithm, Indoor positioning.**

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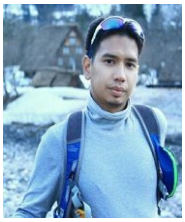

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