SUMMARY INFORMATION ON NEW FINDINGS
IN DOCTORAL THESIS

Dissertation title: **" Developping efficient localization and motion planning systems for a wheeled mobile robot in a dynamic environment."**
Major: Control engineering and Automation
Code: 9.52.02.16
PhD student: **Nguyen Thi Lan Anh**
Supervisor: Assoc. Prof. Pham Trung Dung

Educational institution: Military Technical Academy

The new findings of the research:

- Two sensor fusion-based localization algorithms are proposed to improve accuracy of the conventional localization systems, including the EKF - based localization algorithm and the Particle filter (PF) based localization algorithm, when the robot moves in the environments with sufficient information and the interrupted signal situation, respectively.
- Three new local planning algorithms, including EDWA, PTEB and ETEB algorithms. The mobile robots equipped with the proposed algorithms are capable of proactively avoiding dynamic obstacles and potential collisions, and navigating safely towards the given goal.
- The integrated navigation system based on the proposed algorithms, including the EKF-based localization algorithm and the ETEB algorithm, is utilized in real - world environments to illustrate efficient and feasibility of the proposed system.

Ha Noi, / /2021

SUPERVISOR **PHD STUDENT**

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