HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF MECHANICAL ENGINEERING
DEPARTMENT OF MECHATRONICS ENGEERING

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UNDERGRADUATE THESIS

ADVANCED PROGRAM

MAJOR IN MECHATRONICS

INTELLIGENT AUTONOMOUS ROBOT USING SLAM, RRT*, FUZZY-PID TECHNIQUES

Student: **Nguyen Gia Huan**
Pham Cong Hoang
Class: AP Mechatronics – K59
Advisor: **Dr. Mac Thi Thoa**
Reviewer:

HA NOI 05-2019

HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY
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SOCIALIST REPUBLIC OF VIETNAM
Independence – Freedom – Happiness

GRADUATION THESIS DEFINITION

(MECHATRONICS ENGINEERING)

1. Student's information

Name: Nguyen Gia Huan — Student ID: 20141888
Mobile phone: +84 355 88 00 96 — Email: huan.ng141888@sis.hust.edu.vn
Name: Pham Cong Hoang — Student ID: 20141805
Mobile phone: +84 977 70 04 95 — Email: hoang.pc141805@sis.hust.edu.vn
Class: AP – Mechatronics K59 — Form of training: Full time
Graduation thesis is completed at Hanoi University of Science and Technology
Thesis completion time interval: From 01/01/2019 to 10/06/2019

2. Thesis topic

"INTELLIGENT AUTONOMOUS ROBOT USING SLAM, RRT*, FUZZY-PID TECHNIQUES"

3. Requirements:

- Researching and designing a model of Mobile Robot.
- Using 3D camera and LIDAR to build a 3D map of the environment.
- Finding a feasible and optimal path for Mobile Robot.
- Detecting and avoiding obstacle.

4. Thesis content and calculations:

- Designing and build the mobile robot.
- Simulating the system on Robot Operation System and operating in real world.

5. List of technical drawings

- Robot's mechanical drawing: 1 A0 Paper

Ha Noi, May 2019
Advisor

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THESIS EVALUATION

Student's name: Nguyen Gia Huan

Course: K59 Class: AP – Mechatronics K59 Major: Mechatronics Engineering

Thesis topic: INTELLIGENT AUTONOMOUS ROBOT USING SLAM, RRT*, FUZZY-PID TECHNIQUES

I. Amount of work:

1. Thesis report: 113 Pages
2. Technical drawing: 1 A0 Pages

II. Merit of the thesis

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III. Demerit of the thesis

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IV. Conclusion

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Ha Noi, May 2019

Advisor

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THESIS EVALUATION

Student's name: Luong Duc Nhat

Course: K59 Class: AP – Mechatronics K59 Major: Mechatronics Engineering

Thesis topic: INTELLIGENT AUTONOMOUS ROBOT USING SLAM, RRT*, FUZZY-PID TECHNIQUES

I. Amount of work:

1. Thesis report: 113 Pages
2. Technical drawing: 1 A0 Pages

II. Merit of the thesis

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III. Demerit of the thesis

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IV. Conclusion

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Ha Noi, May 2019

Reviewer