**HA NOI UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**PROJECT II**

**Serving Mobile Robot Design**

**STUDENT GROUP**

|  |  |
| --- | --- |
| Tran Tuan Minh | * 20181906 |
| Tran Minh Duc | * 20181875 |
| Ly Duc Trung | * 20181930 |

|  |  |
| --- | --- |
| **Mentor:** | Ph. D Le Minh Thuy |
| **Department:** | Instrumentation and industrial informatics |
| **School:** | Electrical Engineering |
| **HA NOI, 01/2022**  **TABLE OF CONTENTS**  **CHAPTER 1. GENERAL INTRODUCTION ABOUT MOBILE ROBOT**  1.1 Overall information about mobile robot  1.2 Serving mobile robot design planning  1.3 Mathematical motion modeling  **CHAPTER 2. HARDWARE DESIGN FOR SERVING MOBILE ROBOT**  2.1 System design  2.2 Power supply block  2.3 Sensors block  2.4 Motor driver block  2.5 Output display & speaker block  2.6 Main processor block  **CHAPTER 3. FIRMWARE DESIGN FOR SERVING MOBILE ROBOT**  3.1 ROS 2 architecture  3.2 Serving mobile robot firmware architecture  3.3 Communication method design  3.4 Sensor block  3.5 Path planning block  3.6 Motor controller block  3.7 Human machine interface (HMI) block  **CHAPTER 4. EXPERIMENT AND RESULTS**  4.1 Serving mobile robot design result  4.2 Serving mobile robot use cases  **CONCLUSION AND FUTURE DEVELOPMENT**  **REFERENCES** | |
|  | |