



CAPSTONE PROJECT REGISTER

Class: **Duration time:** from/20.... To/20.....

(*) **Profession:** <Software Engineer>

Specialty: <ES> ☐

<IS> ☒

<JS> ☐

(*) **Kinds of person make registers:**

Lecturer ☒

Students

1. Register information for supervisor (if have)

No.	Fullname	Phone	E-Mail	Title
Supervisor	Mr. Phạm Thanh Trí	0937359396	tript9@fe.edu.vn	Mr.

2. Register information for students (if have)

	Full name	Student code	Phone	E-mail	Role in Group
1	Lê Văn Hà	SE140685	0364463482	Halvse140685@fpt.edu.vn	Leader
2	Lê Tấn Việt	SE173272	0867603194	vietltse173165@fpt.edu.vn	Member
3	Nguyễn Cường Thịnh	SE160927	0938291478	Thinhncse160927@fpt.edu.vn	Member
4	(Bổ sung thành viên sau)				

3. Register content of Capstone Project

(*) 3.1. Capstone Project name:

- English: IoT Materials Trading Platform with Assembly Instructions.
- Vietnamese: Nền tảng buôn bán vật liệu IoT có hướng dẫn lắp ráp.
- Abbreviation: IoTs

a. Context:

The platform allows users to explore, learn about, and purchase smart devices through online stores managed via the website. Users can choose to buy individual devices and learn how to assemble them on their own or select kits that come with detailed assembly

instructions and access instructional videos from expert instructors. Additionally, users can interact with the store through live chat and report issues with devices or kits when encountering problems. This enables staff to provide timely support and effective management.

Products from each store must be processed and approved by an Administrator role before they are allowed to be sold. Accounts designated as Stores must go through a vetting process before going live. Stores also have the ability to create promotional blogs, giving users more flexible access to information and content.

A key advantage of the platform is the warranty system, which supports products damaged during shipping or those with pre-existing defects. Furthermore, users have a limited number of support interactions with each combo in the store, ensuring efficient service while preventing abuse of the support system.

b. Proposed Solutions

- **Reliable Buy-and-Sell Platform:** Provides a dependable space for buying and selling IoT devices, with prompt customer support post-purchase.
- **Direct Communication:** Enables direct interaction between users and stores through live chat, making it easy for users to get support without additional effort.
- **Wishlist Feature:** Allows users to create a wishlist of favorite products for future review and purchase.
- **Content Promotion:** Stores can post daily promotional blogs, with an algorithm prioritizing high-quality content based on user engagement (comments and likes). This keeps valuable, well-rated content visible, while limiting excessive posts.

• Functional requirement

○ IoT Platform Mobile Application

- Users can verify their accounts via email before interacting with the IoT platform.

- Users can engage by commenting on and liking recommended blogs created by stores.
- Users can report low-quality products or flag inappropriate posts.
- The platform supports buying and selling through the VN Pay Payment Platform.
- Users can track their order history and view the status of their orders.

○ **IOT Platform Website Application**

- IoT Shopping:
 - Users can purchase IoT devices with assembly instructions.
 - They can buy items in combos (including instructions and devices) or purchase individual items.
- Warranty:
 - Support for the warranty of each IoT device, based on the conditions set by the Store.
- Payment and Refund:
 - Payments can be made via VN Pay.
 - Refunds are supported if the product is not completed; once the order is fulfilled, the transaction is considered final.
- Order Management:
 - Track order status: In-store, preparing for shipment, shipping, and completed.
 - The status will automatically change to "done" after 30 days if the user does not complete the order manually.
- Blog and Interaction:
 - Users can comment and like product advertising blogs.
 - Blogs are categorized by criteria: latest, most popular, and most liked.
- Report Products:
 - Users can report a product if there is an issue, sending it directly to the Manager.

- Direct Chat with Store:
 - Users can chat directly with the Store to receive necessary support.
- Events and Advertising:
 - Participate in events and view advertisements from Stores, which are approved by Staff.
- **Admin Web Page**
 - Account Management:
 - Review and approve Store accounts before allowing them to sell products.
 - Monitor the activities of Stores and Users to ensure compliance with policies.
 - Product Management:
 - Manage all products available on the platform.
 - Have the authority to deactivate (inactive) products but cannot edit product information.
 - Content Management:
 - Review advertising blogs and event posts from Stores to ensure quality and relevance.
 - User Feedback Management:
 - Handle reports from Users about inappropriate products or posts and take necessary actions.
 - Staff and Manager Management:
 - Set access rights for Staff and Managers to ensure they can perform their respective tasks.
 - Monitoring and Reporting:
 - Track the platform's activities, including transactions and user feedback.
 - Generate overall activity reports for Stores and Users.
- **Staff Web Page**
 - Store Account Management:
 - Assist in reviewing and approving Store accounts.

- Manage and process account change requests from Stores.
- User Support:
 - Address issues related to User and Store accounts.
 - Resolve support requests from Users.
- **Manager Web Page**
 - Product Management:
 - Approve products submitted by Stores before they are listed for sale.
 - Blog Management:
 - Review and approve advertising blog posts before they are published.
 - Create and manage events to promote products from Stores.
 - User Feedback Management:
 - Receive and address reports related to products or blogs from Users.
- **Store Web Page:**
 - IoT Product Management:
 - Post various IoT products for sale, categorized by the Manager.
 - Stores can offer product combos that include tools and assembly instructions, or sell individual items separately.
 - Create Advertising Blogs:
 - Stores can create daily blogs to promote their products, with a fixed posting limit to prevent spam.
 - Blogs are prioritized based on criteria such as latest, most popular, and most liked.
 - Product Warranty:
 - Set the warranty period for each IoT device purchased by users.
 - User Support:
 - Provide support for users who purchase product combos, with a specific support period determined by the Store.
 - Order Management:

- Track and update the status of orders from the time they are received until the product is handed over to the shipping provider and completed.
- User Feedback:
 - Receive reports from users about problematic products or inappropriate posts.
 - Directly chat with users to resolve issues or provide support.
- **Trainer Web Page:**
 - Course Creation:
 - IoT Courses: Trainers offer free or paid IoT courses, including hands-on IoT projects.
 - Item Sourcing: Trainers can access items from partnered Shops, benefiting from bulk pricing and commission on sales related to their courses.
 - Partnerships:
 - Multiple Shop Partnerships: Trainers can partner with multiple Shops to provide a diverse range of materials and enhance course offerings.
- **Non - functional requirement**

1. Performance

- The system should support at least X concurrent users without degrading performance.
- Pages should load within 2 seconds under normal network conditions.
- Transactions should be processed within X seconds.

2. Scalability

- The platform should be horizontally scalable to handle increased traffic.
- It should support the addition of new Stores without significant architectural changes.

3. Security

- User data should be encrypted both in transit and at rest.
- Implement secure authentication methods, such as two-factor authentication.
- Conduct regular security audits to identify and fix vulnerabilities.

4. Usability

- The platform should provide an intuitive user interface that allows users to navigate easily.

5. Interoperability

- The platform should be compatible with various devices (desktops, mobiles, tablets).
- Integration with payment gateways and third-party services should occur seamlessly.

(*) 3.2. Main proposal content (including result and product)

a. Theory and practice (document):

- Students should apply the software development process and UML 2.0 in the modeling system.
- The documents include User Requirement, Software Requirement Specification, Architecture Design, Detail Design, System Implementation, and Testing Document, Installation Guide, sources code.
- Server-side technologies:
 - Server: Home Server (Arch-based system), accessible static IP address or Dynamic DNS.
 - Streaming Storage: SQL Server Management Studio (SSMS).
 - Database Design: SQL Server.

- Client-side technologies:
 - Web Client: ReactJS and Tailwindcss.
 - Mobile App: React Native.
- Back-end technologies:
 - Web Client: ASP.Net Core.

b. Products:

- Mobile App, web page
- Web API for System.
- Web page for Admin.
- Web page for Staff.
- Web page for Manager.
- Web page for Store
- Web page for Customer.
- Web page for Trainer.

c. Proposed Tasks:

- Task package 1: Develop the Web application of the System for Admin.
- Task package 2: Develop the Web Application for the users.
- Task package 3: Develop a mobile app for users (Android or IOS).
- Task package 4: Develop the web application for creators and distributors.

- Task package 5: Develop the web application for Store.
- Task package 6: Develop the web application for Staff and Manager.
- Task package 7: Build – Deploy and Test the system.
- Task package 8: Prepare all the required documents: System analysis and Design, Test plan, Installation manual, User manual.

4. Other comments (propose all relative things if have).

Supervisor (If have) <i>(Sign and full name)</i>	HCM, date /20 ... On behalf of Registers <i>(Sign and full name)</i>
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