

# Architectural Thinking for Intelligent Systems

## Assignment for Lecture A7

### Team Members:

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### 1) Vision

**For** a person

**Who** wants to shop, especially groceries,

**The** “Shoppo”

**Is** an assisting shopping robot

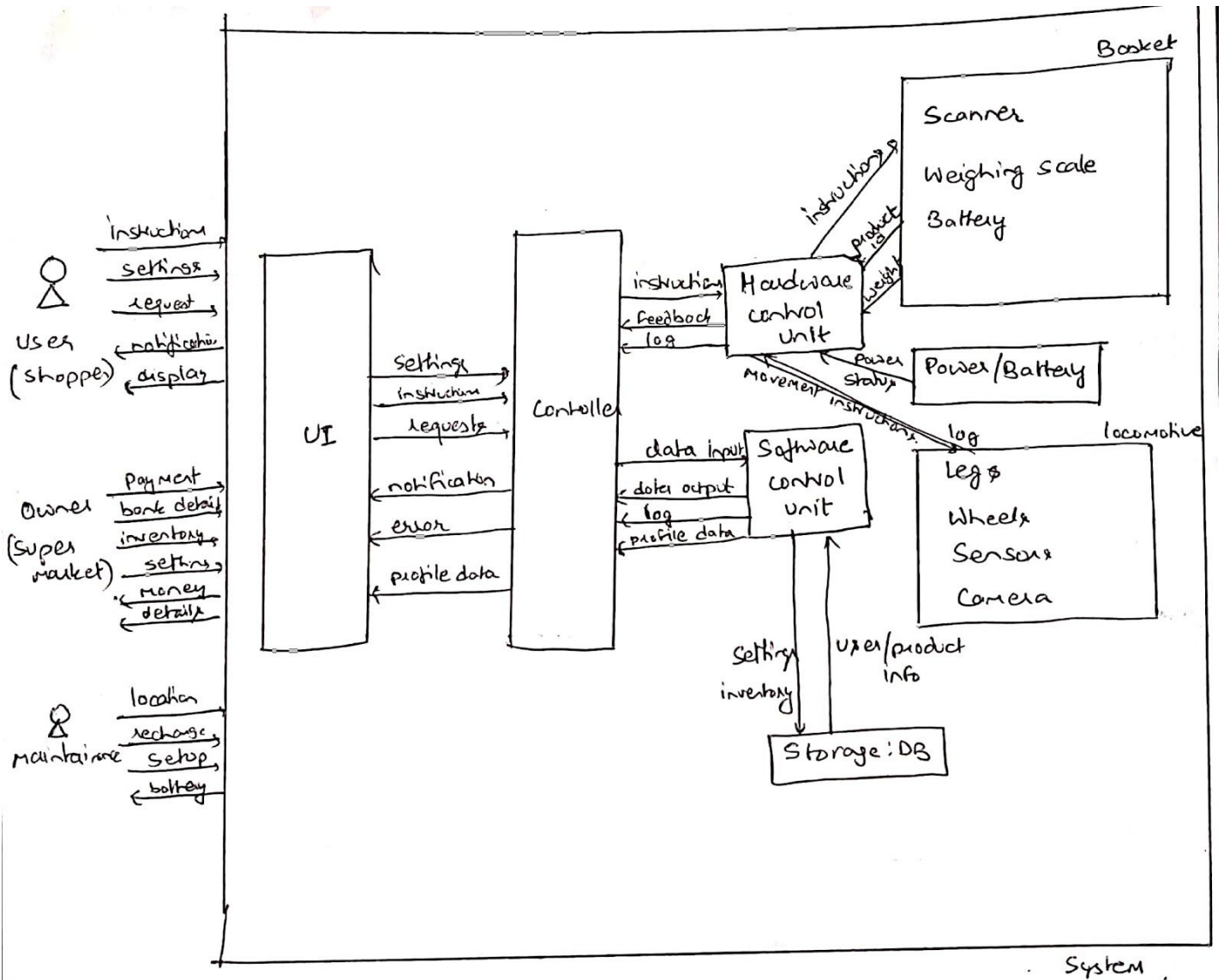
**That** makes shopping an enjoyable and more efficient experience

**Unlike** carrying a heavy shopping bag or shopping online

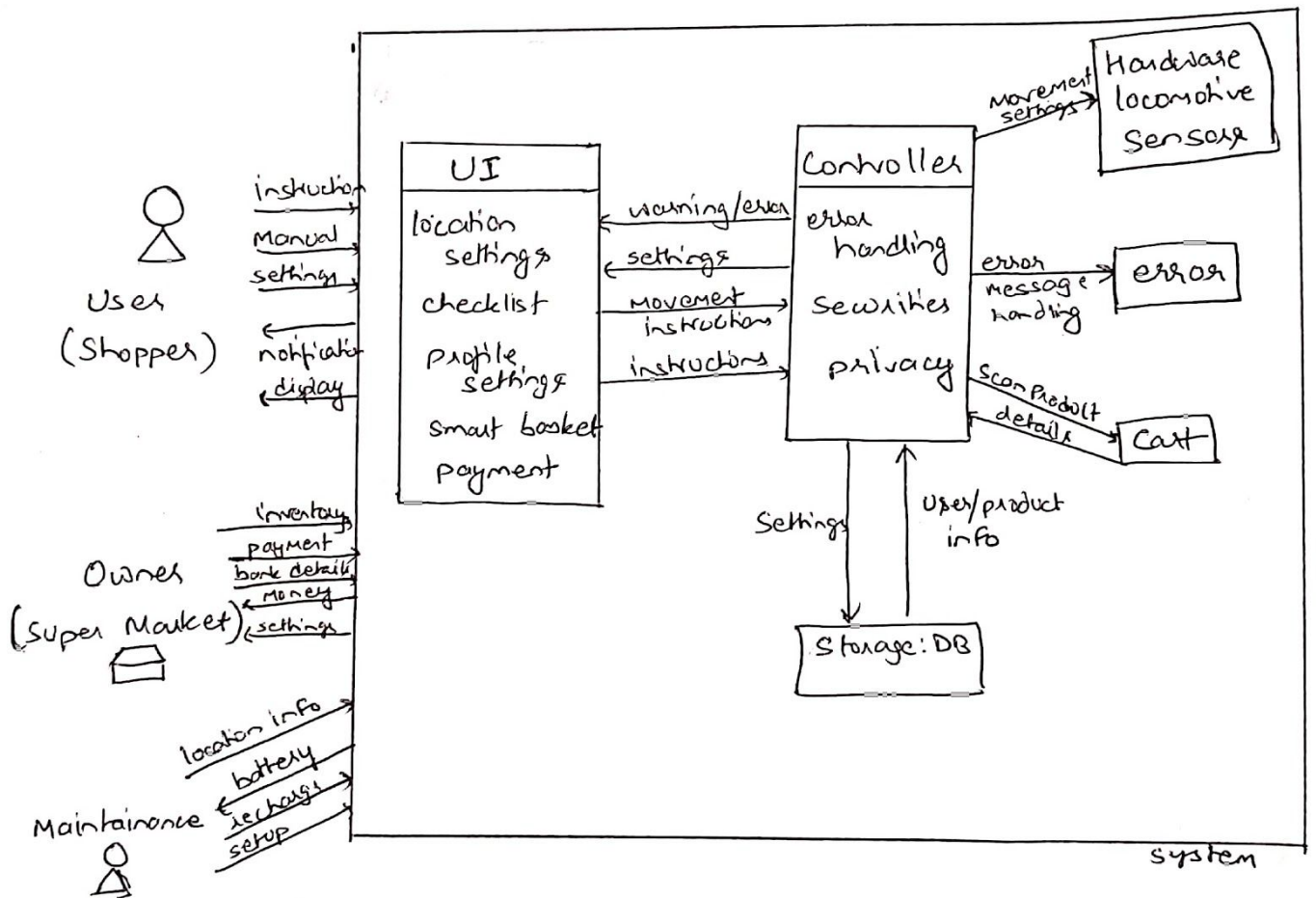
**Our Product** reintroduces the joy of checking quality and selecting items in person especially by taking responsibility for the shopping list and the already selected items and simplifying payment

## 2) Initial system idea and architecture overview diagram

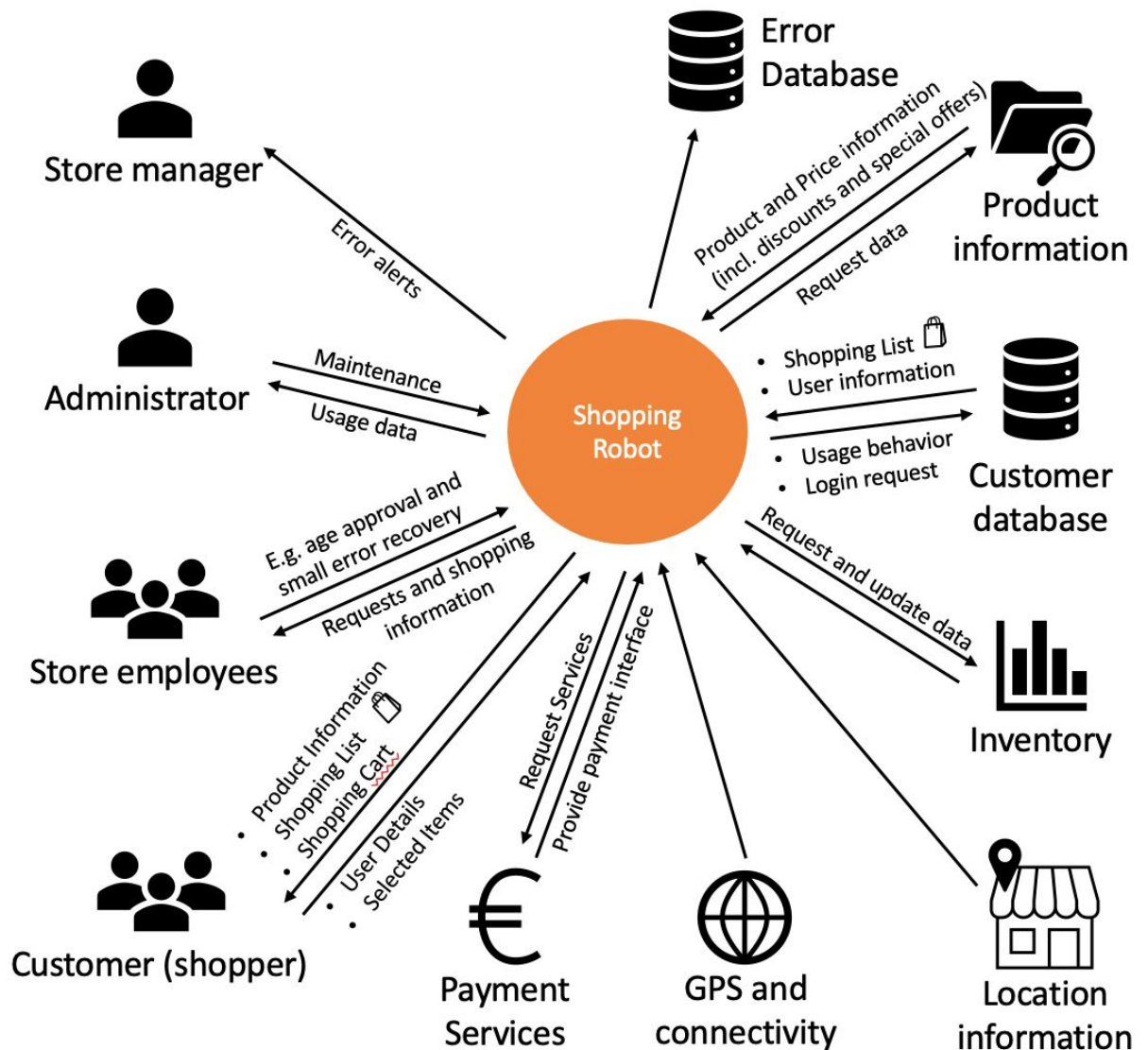
### Developer View:



## Business owner view:



### 3) Context view



### 4) Which interfaces will require the biggest project effort? Critical dependencies to environmental systems? Biggest risks in dependencies to external systems?

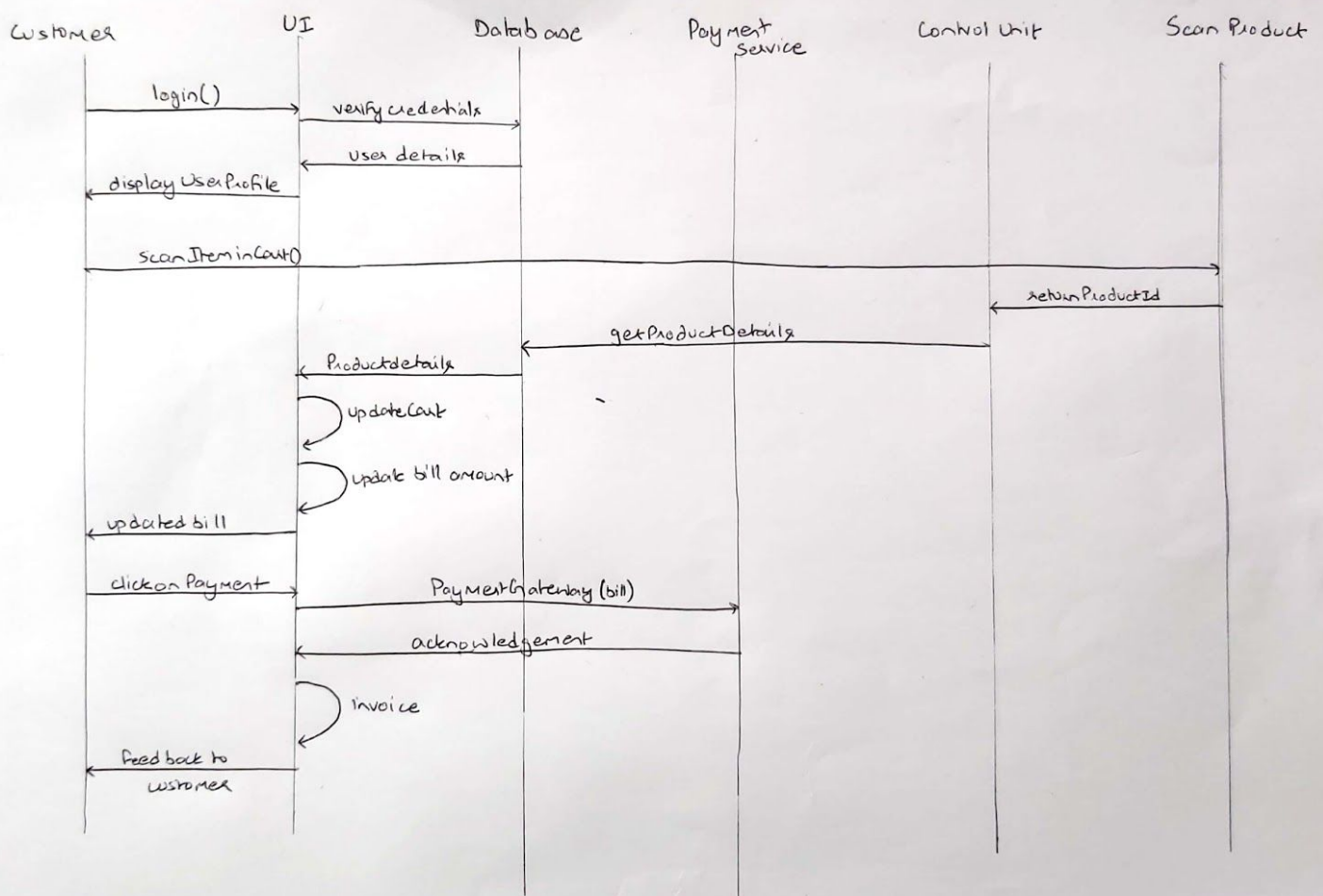
The **biggest project effort** is required for the customer database and inventory. These two require write access and must be synchronized with already existing processes. Other interfaces already exist and are requested (payment,...) or will be specific to the shopping robot and do not share information with other processes (error database).

On the one hand a **critical dependency** is on the payment interface because it really needs to be stable and reliable, on the other hand the product information is critical since there are so many different stores in which the robot can operate with new discount information every week. Both interfaces are especially critical because small errors lead to a customer satisfaction that goes towards 0.

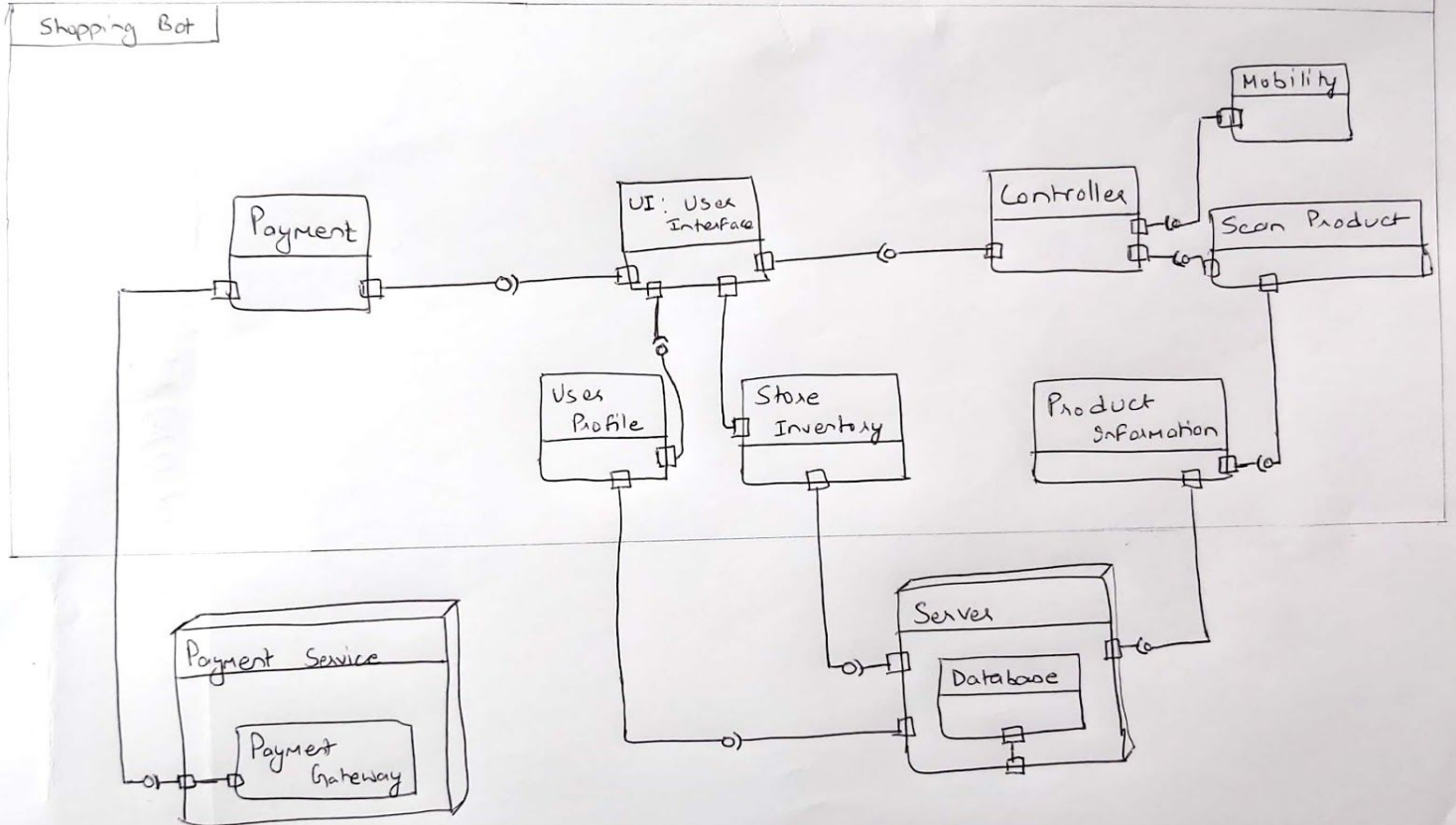
The **biggest risk** is the one described before. Customers only recognize things that are extremely good or extremely bad. Especially for Payment and Product information which directly affect the customer one needs to guarantee reliability and security.

5)

Runtime View:



### Distribution View:-



6)

#### **Operating costs:**

The integration of a scanner to scan the product and fetch its details from the database, and automatically update the cart reduces the manual manpower needed which reduces the operation cost significantly.

The personal assistance again helps remove human assistance required.

Automatic Payment integrations, Inventory management, etc also influence the operational costs.

#### **Cost drivers for Development:**

Technology used (for front end, back end, softwares, licences, cloud space).

Developers Team (Software engineers, Testers, Business Analyst, Project Owner, Project Manager).

Hardware components.

Training autonomous movement of robots.

**Cost drivers for Maintenance:**

Training provided to the shopping market supervisor and staff.

Scaling of servers and databases.

Hardware maintenance.

Inventory management.