

# Architectural Design

## Introduction to Architectural Design

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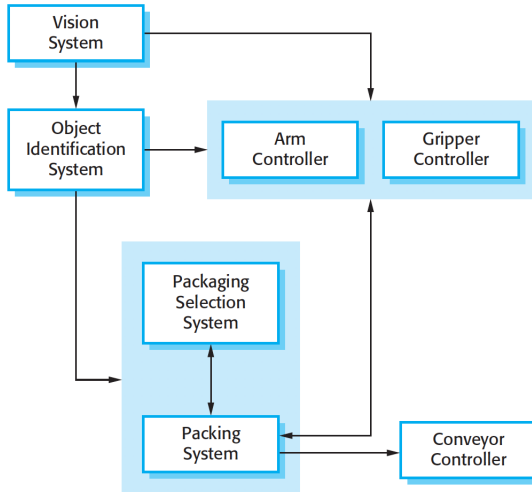
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# Architectural Design

- The critical link between design and requirements engineering
- Identifies the main structural components in a system and the relationships between them
- The output is an architectural model that describes how the system is organized as a set of communicating components
- The goal is to design a system organization that will satisfy the functional and non-functional requirements of a system

# Example: Architecture of a Packing Robot Control System



# Connection with Requirement Engineering

- Architectural decomposition is usually necessary to structure and organize the specification
- An abstract system architecture help associate groups of system functions or features with large-scale components or sub-systems
- Use this decomposition to discuss the requirements and features of the system with stakeholders
- The nonfunctional requirements depend on the system architecture — the way in which these components are organized and communicate

# Architectural Design Decisions

- Is there a generic application architecture that can act as a template for the system that is being designed?
- How will the system be distributed across a number of cores or processors?
- What architectural patterns or styles might be used?
- What will be the fundamental approach used to structure the system?
- How will the structural components in the system be decomposed into subcomponents?
- What strategy will be used to control the operation of the components in the system?
- What architectural organization is best for delivering the non-functional requirements of the system?
- How will the architectural design be evaluated?
- How should the architecture of the system be documented?

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