How to draw a system diagram

Project Management Unit #2a

Basic Steps

- Identify all major components
  - These are your subsystems
  - Derived from your project goal, objectives and requirements
- Identify all interfaces between components
  - These are either relationships or real connections between components
- Produce your drawing
  - Components are labeled boxes
  - Interfaces are arrowed lines keyed to the interface function
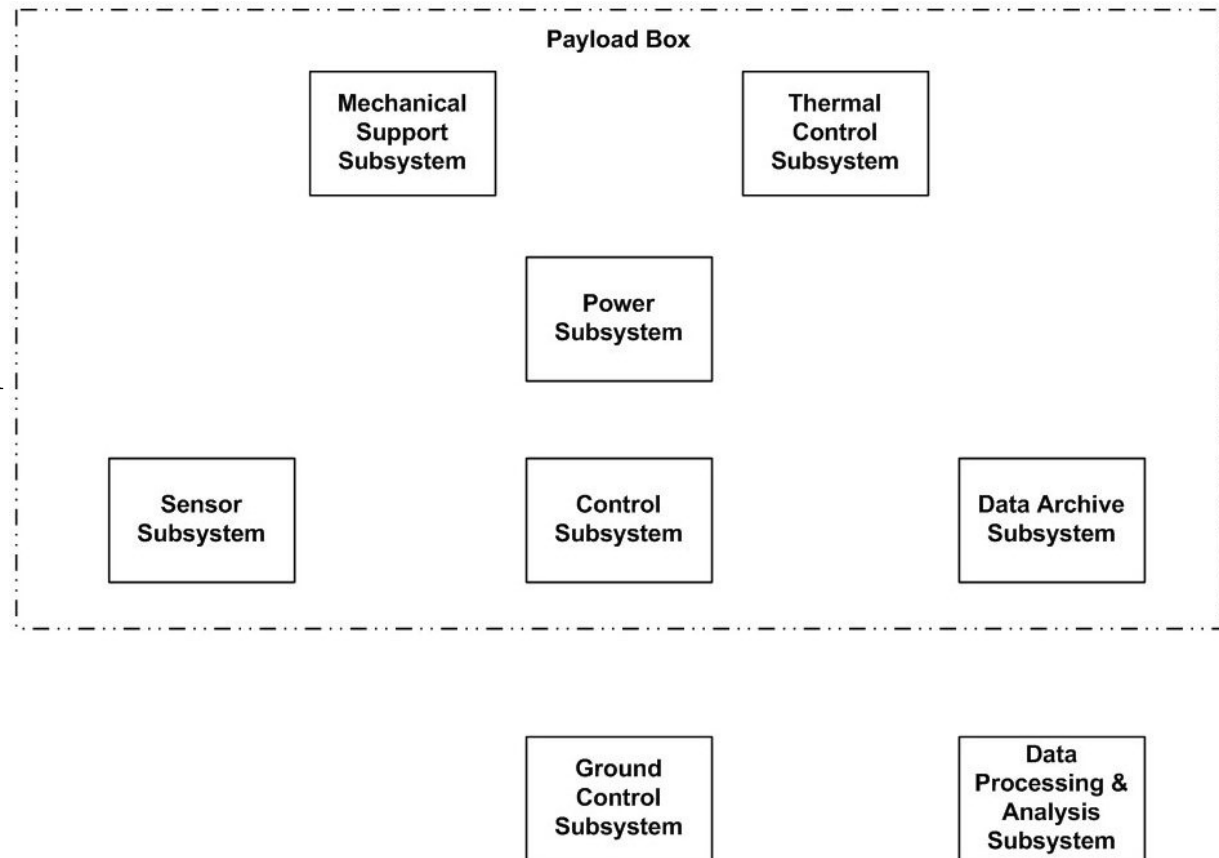 - Keep your layout as straight forward as possible

Identify Major Components

- Components are based upon the project goal, objectives and requirements:
  - To measure something you need a Sensor Subsystem
  - To store your data you need a Data Archive Subsystem
  - For your payload to operate by itself during flight you need a Control Subsystem
  - To enable your payload to operate you need a Power Subsystem
  - To keep your payload from falling apart you need a Mechanical Support Subsystem
  - To keep your experiment at the correct temperature you need a Thermal Control Subsystem
  - To analyze your data offline you need a Ground Support Subsystem
- More or different kinds of subsystems might be required
- You also need to understand where these subsystems are located

Example Component Drawing

- Each sub-system has its own box
- Components are arranged in a logical order
- Components are grouped according to their relational location

Payload Box

Mechanical Support Subsystem		Thermal Control Subsystem
	Power Subsystem	
Sensor Subsystem	Control Subsystem	Data Archive Subsystem

Ground Control Subsystem	Data Processing & Analysis Subsystem

Determine the interfaces

- Interfaces are the "connections" between the components
  - Could be a physical connection (e.g. wire, bolt)
  - Could be a relationship / property (e.g. temperature, light)
- Each unique interface should be represented by a different kind of line
- Each interface should be labeled according to its specific characteristics
- Arrows on the ends of the line indicate flow

Interface representations

- Interfaces types
  - Power
  - Data
  - Control
  - Mechanical
  - Thermal
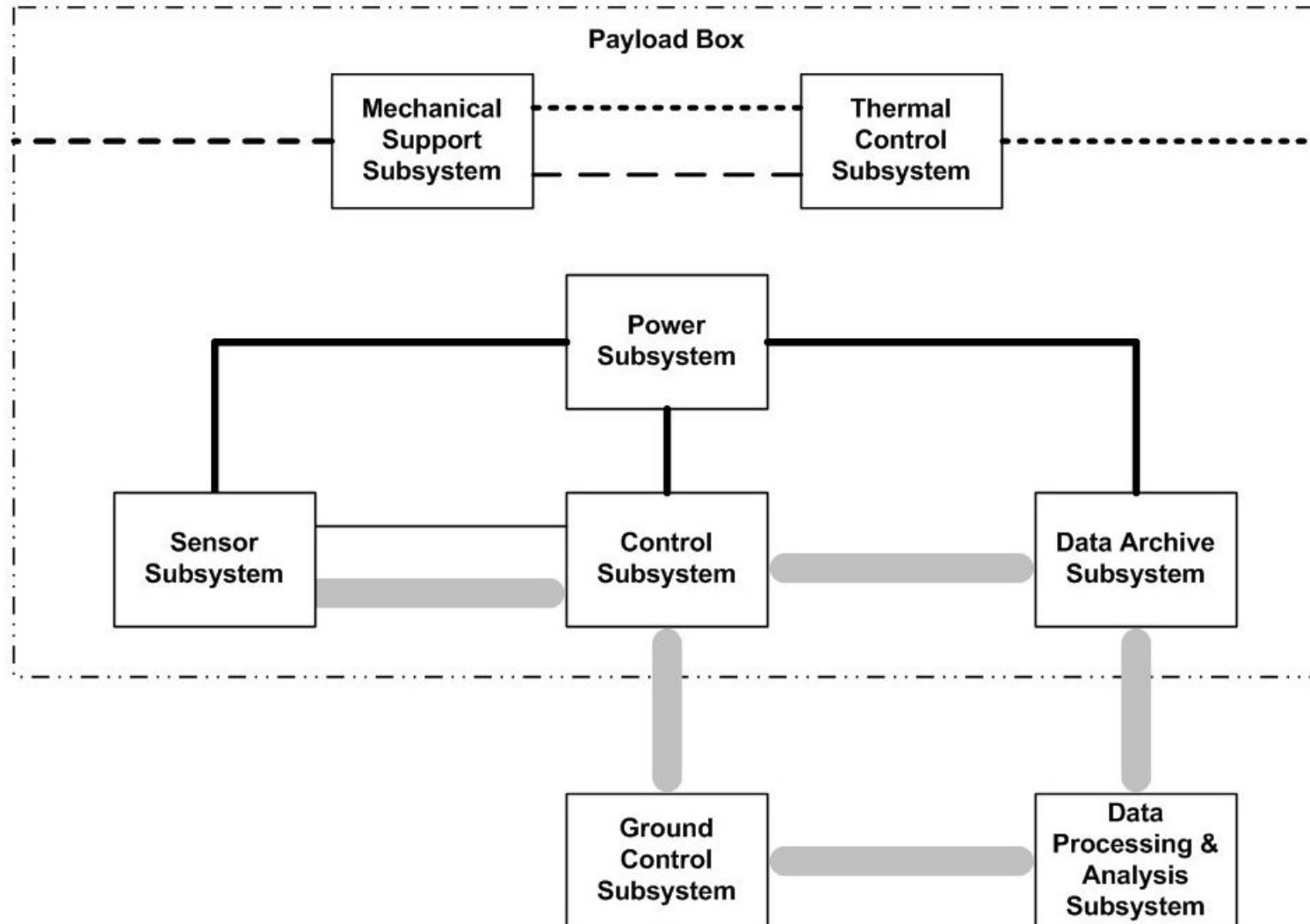- Interface flow
  - To component
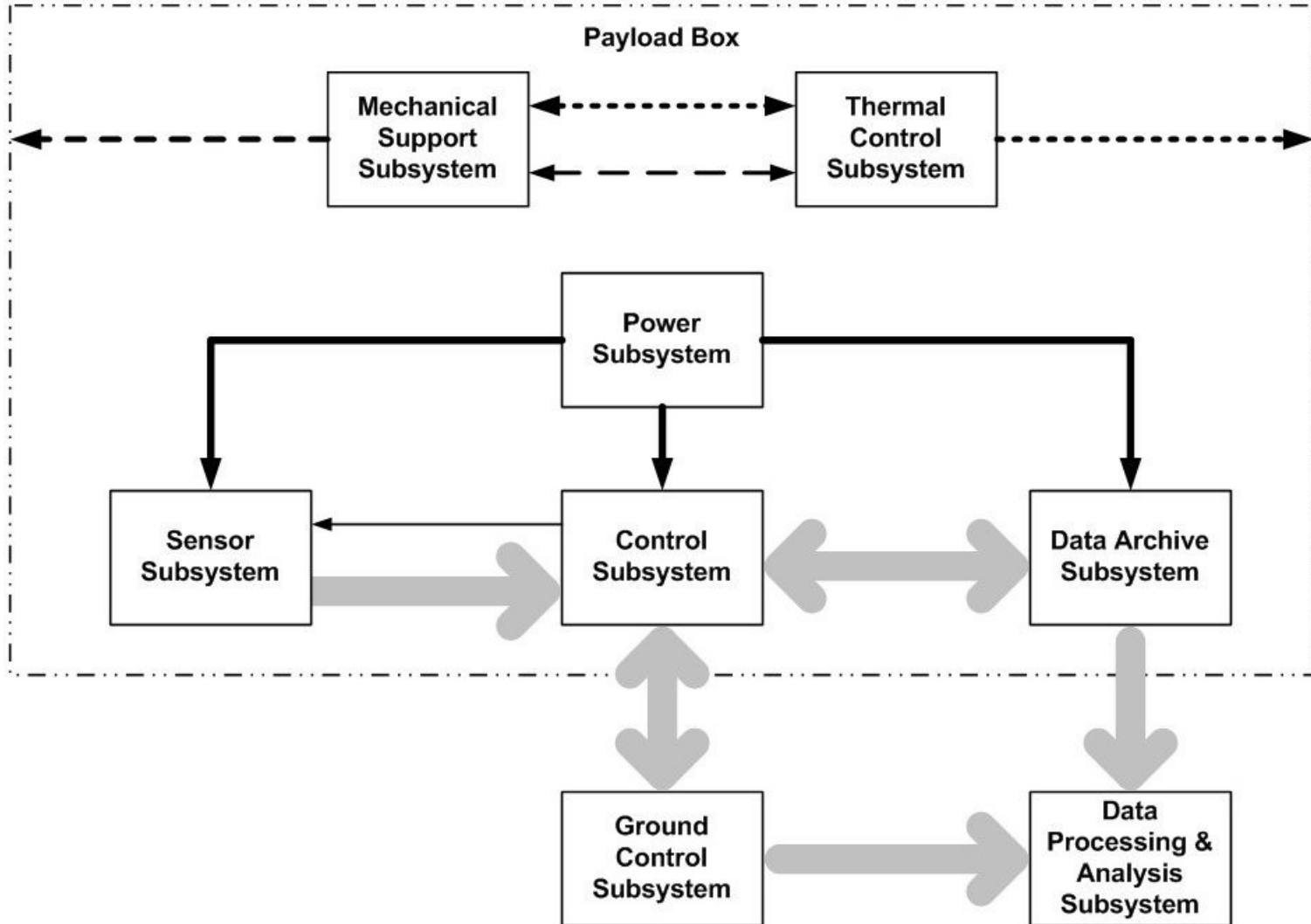 - From component
  - Bi-directional

Add the interfaces

Payload Box

Mechanical Support Subsystem

Thermal Control Subsystem

Power Subsystem

Sensor Subsystem

Control Subsystem

Data Archive Subsystem

Ground Control Subsystem

Data Processing & Analysis Subsystem

Indicate the interface flow