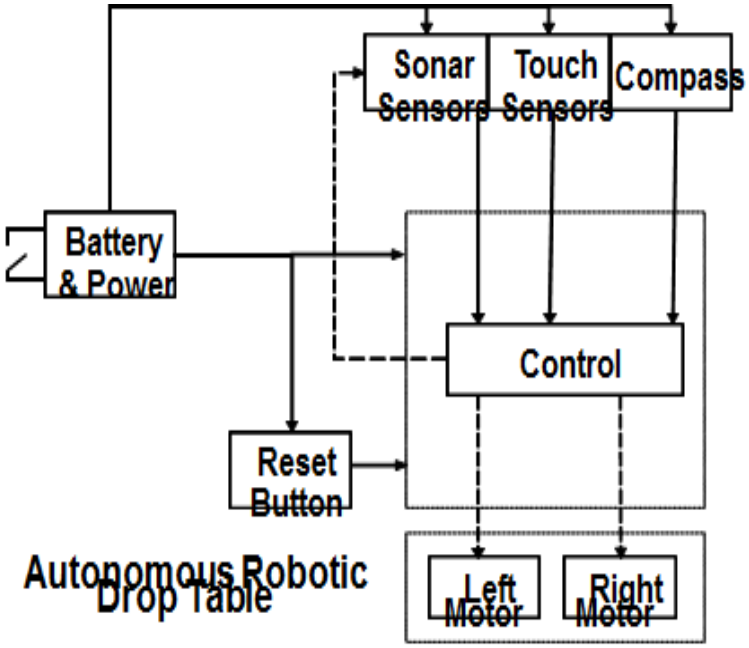
Agile Project Management

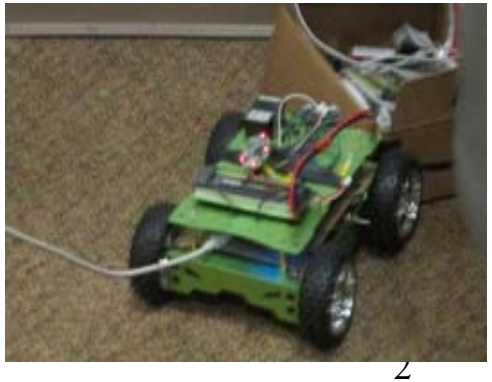
Senior Design II

Electrical Engineering and Compute Science

Product Development – Risks

- Busboy robot project → RC car in demonstration





Product Development – Failure Risk

- Start from good solution design
- Unprepared for complexity of solution implementation
- Results: Working separate components, but not working together as a system
- Incomplete product
- **Failed delivery (to the customer)**
- How would the customer want to check to minimize the risk of not receiving the product?

Waterfall Model

- "Waterfall" Model
  - Give order (or make a contract)
  - Provide all the resources
  - Set the project period and delivery date
  - Wait until the time and expect to receive the product
  - What's the risk of receiving:
    - Promised product
    - Incomplete product
    - No product at all

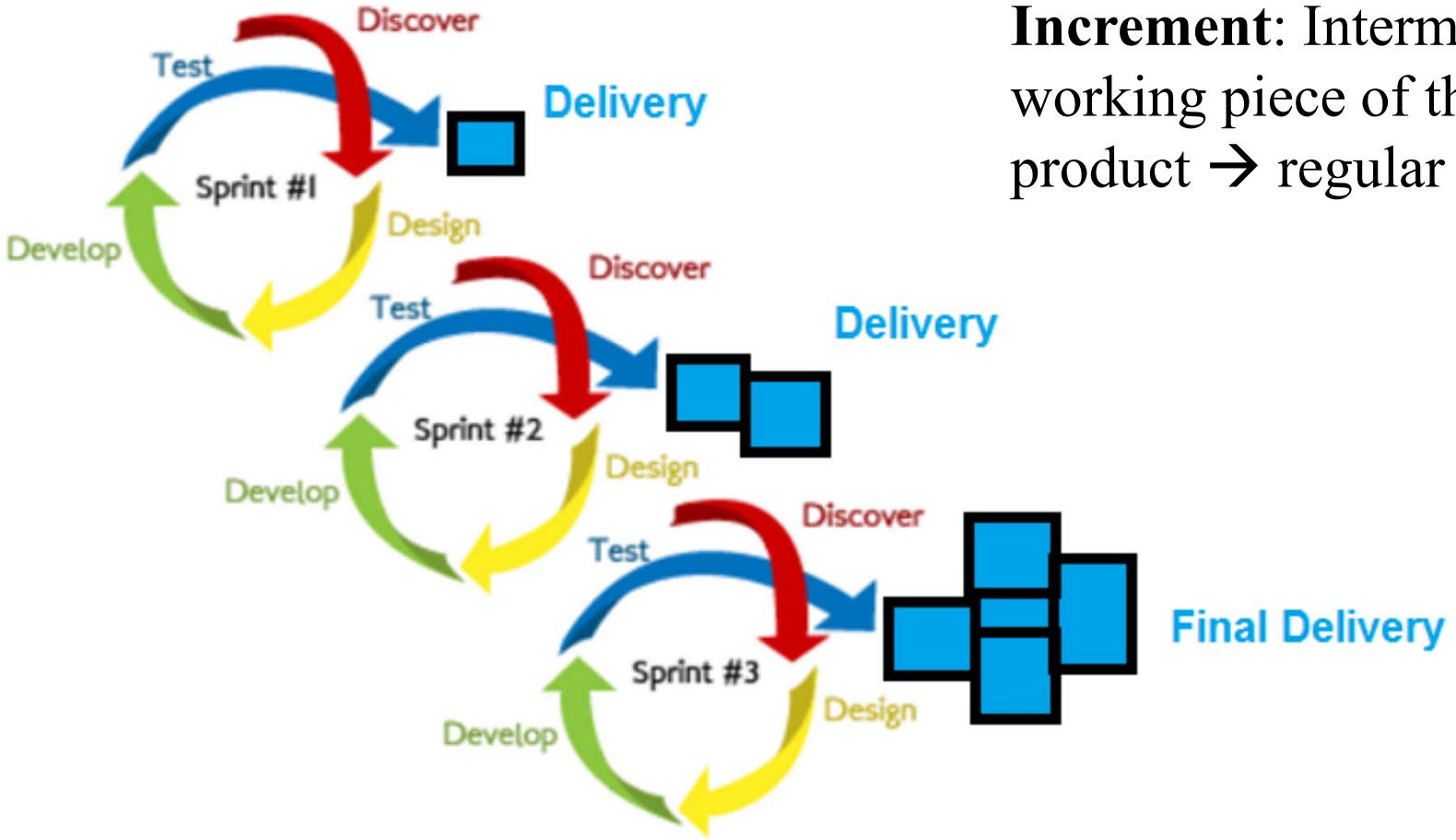
Agile Model

- "Agile" Model
  - Give order (or make a contract)
  - Set the project period and delivery date
  - Set the intermediate result (milestone)
    - Sub-product 1, sub-product 2, sub-product 3
  - Regular check if sub-products are delivered/completed
  - Provide resources for each completed sub-product
  - What's the risk of receiving:
    - Promised product
    - Incomplete product
    - No product at all

Agile Model

- Advantages
  - Cyclic iterative process
  - Coordinated and organized
  - Value-driven prioritization: important component has to be prioritized for the entire product
  - Continuous incremental delivery and continuous integration
  - On budget, on goal, and on-time delivery

Agile Model



Essence

Sprint: Iteration Period
Increment: Intermediate working piece of the product → regular delivery

Agile Model

- Agile Workflow
  - Sprint 0: Target a delivery → Divide task into a few small pieces
  - Sprint 1: A small piece > design and build > test > showcasing the increment 1
  - Sprint 2: Another small piece > design and build > connect to increment 1 . > test> showcasing the increment 2
  - Sprint 3 > Sprint 4 > ...
  - Final Product

Agile Model Example

- Customer/Project Manager point of view
- 1. Final Product
  - Tic-Tac-Toe playing robot
- 2. Divide in to intermediate working pieces/hardware (with due dates) which, combined together, lead to the final product
  - "Sprint 1":_____
  - "Sprint 2": _____
  - "Sprint 3": _____

Class Schedule for Agile Model for Solution Implementation

- **Sprint 0 (Week of Jan 16):**
  - **Start from "The Final Solution Product"**
  - Divide the final product in to 4 working pieces
- Sprint 1: Jan 30 – Feb 16 (increment 1)
  - **Progress Presentation 1 (T) Feb 20**
- Sprint 2: Feb 19 – Mar 15 (increment 1 + increment2)
  - **Progress Presentation 2 (T) Mar 19**
- Sprint 3: Mar 18 – Apr 5 (increment 1 + increment 2 + increment 3)
  - **Progress Presentation 3 (T) Apr 9**
- **EECS Day**

Team Activity for Agile Model of Solution Implementation

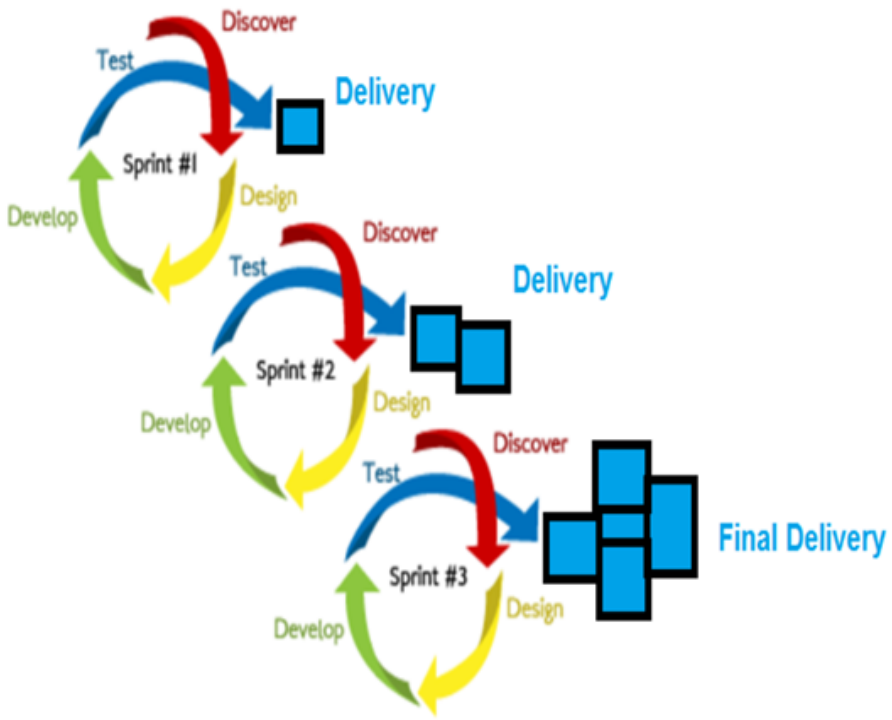
- Use the form (provided in the next page)
- Instruction
  - Take a customer's (or sponsor's) point of view
  - What intermediate working hardware piece do you want to see after the first 3 week? → Increment 1
  - What intermediate working hardware piece do you want to see after the next 3 week? → Increment 1 + Increment 2
  - What is the final product do you expected to see after the third 3-week period? → Increment 1 + Increment 2 + Increment 3
- Fill the 3 boxes of sprints with the increments

Agile Workflow Form

EECE404 Senior Design II

404 Agile Workflow Form

Team Name	
Final Product	



Starting Date of Week	Sprint #	Increment (or intermediate working component/piece/hardware)
1/30/2024	1	
2/5/2024		
2/12/2024		
2/19/2024	2	
2/26/2024		
3/4/2024		
3/11/2024		
3/18/2024	3	
3/25/2024		
4/1/2024		