

# Lecture 9

## Communicating the Requirements: Prototyping



SN8 Starship prototype, D. Etherington/TechCrunch

Com S/SE 409/509

Robyn Lutz

[rlutz@iastate.edu](mailto:rlutz@iastate.edu)

Robyn's Office Hours: **Tues & Thurs, 9:30-10:45**

Wandi's Office Hours: **Mon 10 am. & Wed 7 pm**

Olukorede's Office Hours--**Wed 10**

**Homework 2 due Sept. 17**

**Exam 1, Sept. 24**

Prototyping reduces risk

(Robertsons, Chap. 5, & notes from Wiegers & Beatty, 2013\*)

The phrase *'I'll know it when I see it'* chills the blood of analysts. It conjures up an image of the development team having to make their best guess at the right software to build, only to have users tell them, 'Nope, that's not right; try again.' [Wiegers & Beatty, 2013\*]

People have trouble describing their needs without something tangible in front of them

Reduces risk of customer dissatisfaction

\*Abbreviated as WB13 below

# Prototyping discovers & confirms requirements

## Discovers:

- makes the requirements more real

- brings use cases to life

- closes gaps in analyst's understanding of the requirements.

## Confirms:

- critiquing is much easier than conceiving for users

- clients prefer trying out a prototype to reading a document

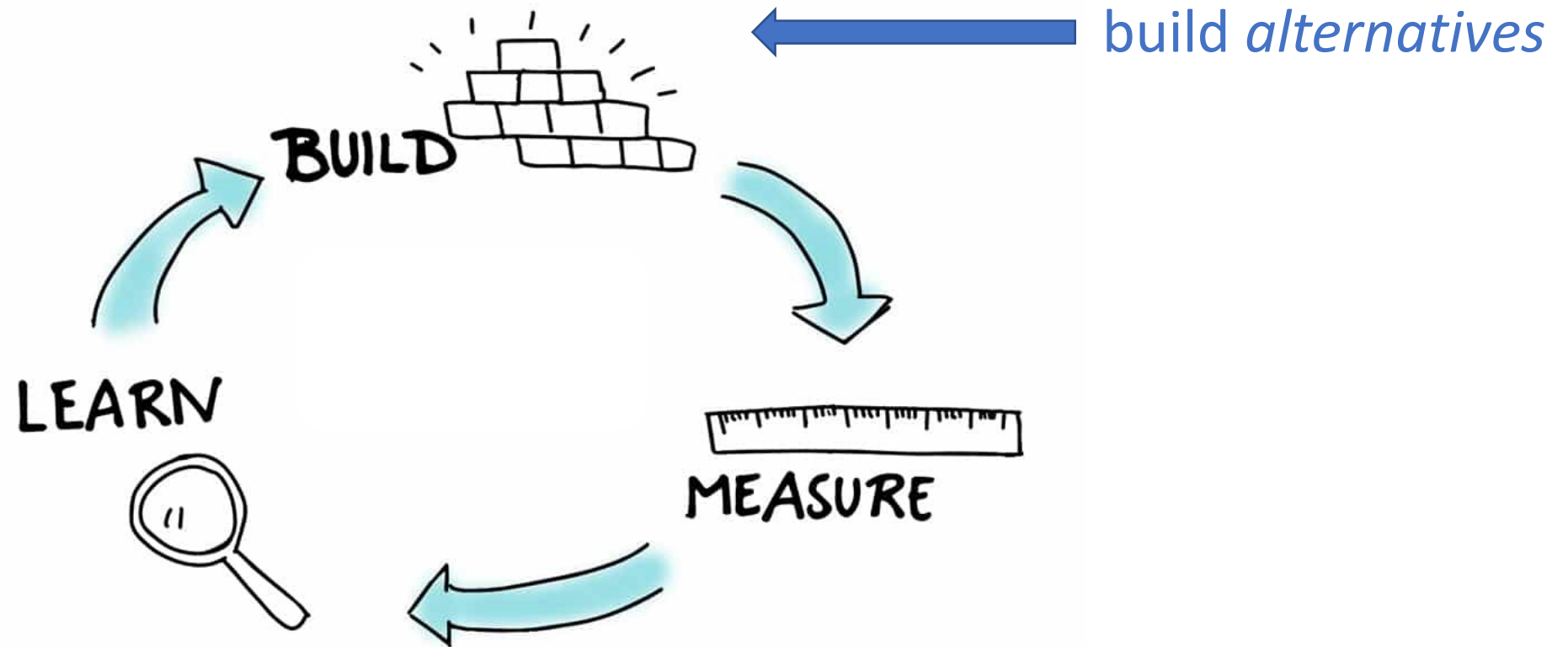
# Types of prototypes

- Robertsons: “a simulation of the product using software prototyping tools, low-fidelity whiteboards, or paper mockups. Also referred to as a sketch.”
- Wiegers and Beatty define a software prototype as “a partial, possible, or preliminary implementation of a proposed new product.”
- many flavors & combinations of flavors; we look at 4

Types of prototypes: 1. Paper [Robertsons & WB13]

- early use for requirements discovery
- low-fidelity prototype: cheap, fast, low-tech
  - Ex: storyboard, sticky notes, index cards, whiteboards
- use to explore requirements options

# Prototype early & often



Medium.com

Types of prototypes: 2. Mockup [WB13]

Mockup of a possible user interface:

- displays user interface screen but little functionality
- demos functional options user will have
- look & feel of user interface (colors, layout, graphics, controls)
- some navigation structure
- info that appears in response to a query is faked or constant
- implies behavior without implementing it
- ~ movie set (cowboy walks into a saloon, but it's just a false front)

## Types of prototypes: 3. Throwaway [WB13]

- discarded after it has served its purpose
- built quickly & cheaply, ignoring good development practices
- used to explore user interactions/navigation
  - Ex: website wireframes
- used to resolve uncertainty, vagueness in requirements.
- Advice: don't let it become production code!



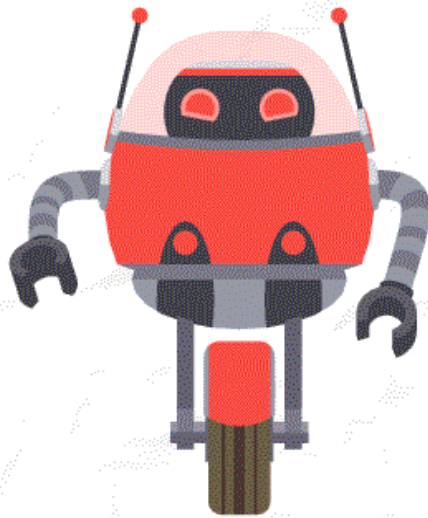
Types of prototypes: 4. Evolutionary [WB13]

- build product incrementally
- solid architectural foundation for easy growth
- production-quality code; no shortcuts
- iterate as the requirements become clear over time
- used in Agile projects
- well suited for web development

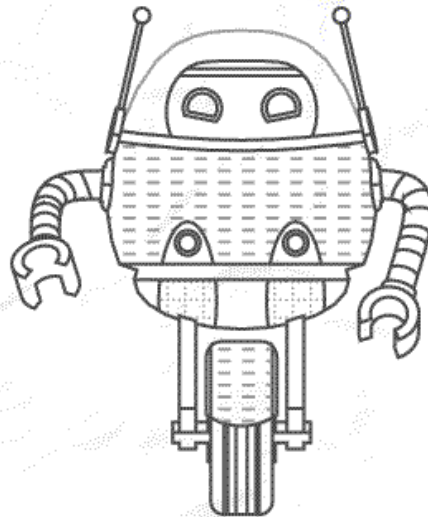
# Evolutionary prototype [WB13]

Each may be a visual display, or have functionality, or be a simulation

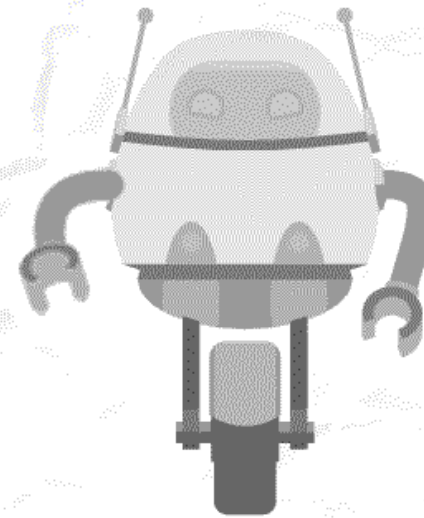
## PROTOTYPING STAGES



LOOKS-LIKE



WORKS-LIKE



TESTS-LIKE

Evaluate prototype via 2-way communication with client [WB13]

- Does the prototype implement the functionality in the way you expected?
- What functionality is missing?
- Can you think of any possible error conditions that it doesn't address?
- Are any unnecessary functions present?
- How logical & complete does the navigation seem?
- Are there ways to simplify any tasks that require too many interaction steps?
- Were you ever unsure of what to do next?