



iCar

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Outline

- Introduction
- Use Case Model
- System Modeling, Analysis & Design
- Requirements Specifications & Constraints
- System Validation & Verification

Introduction

- Apple and Volkswagen are rumored to be in negotiations for designing what is being dubbed as the iCar
- Integrating Apple's very popular i-products in Volkswagen's iCar
- More specifically, integrate Apple's interface from the iPhone and iPod Touch with the car's on-board computer

Introducing the iCar



Apple

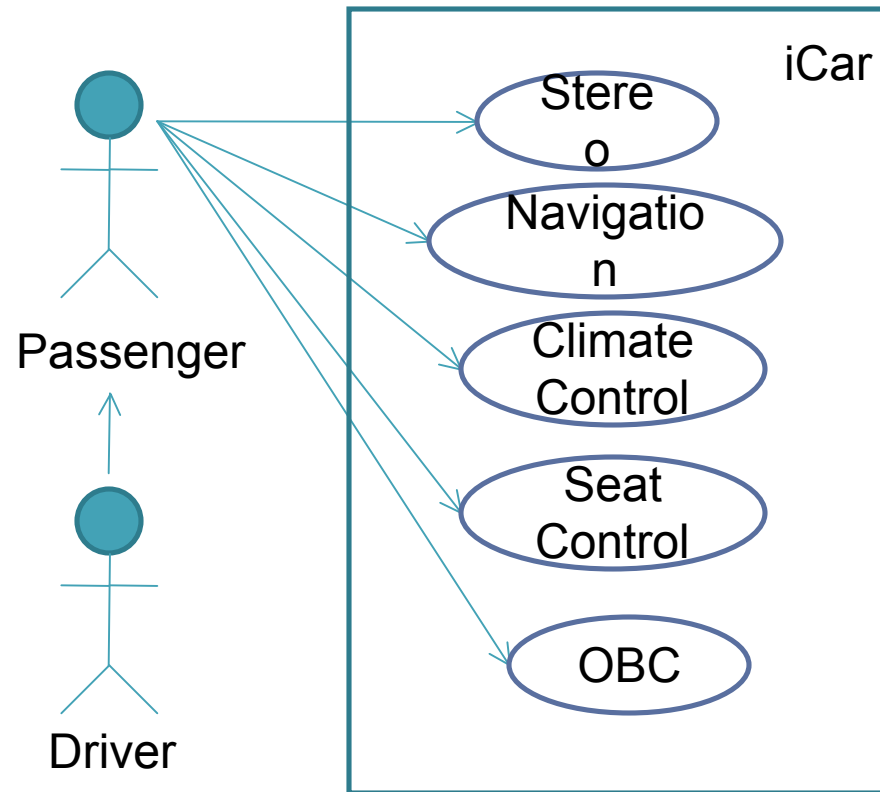
iCar © 1999 Chris O'Riley www.Chris3D.com



Use Case Model

- **Actors:**
 - Passenger
 - Driver (specialization of Passenger)
 - Tester (acting as Driver/Passenger)
- **Use Cases:**
 - Stereo Functions
 - Navigation System
 - Climate Control
 - Seat Control
 - On-board computer (OBC) functions

iCar Use Case Diagram

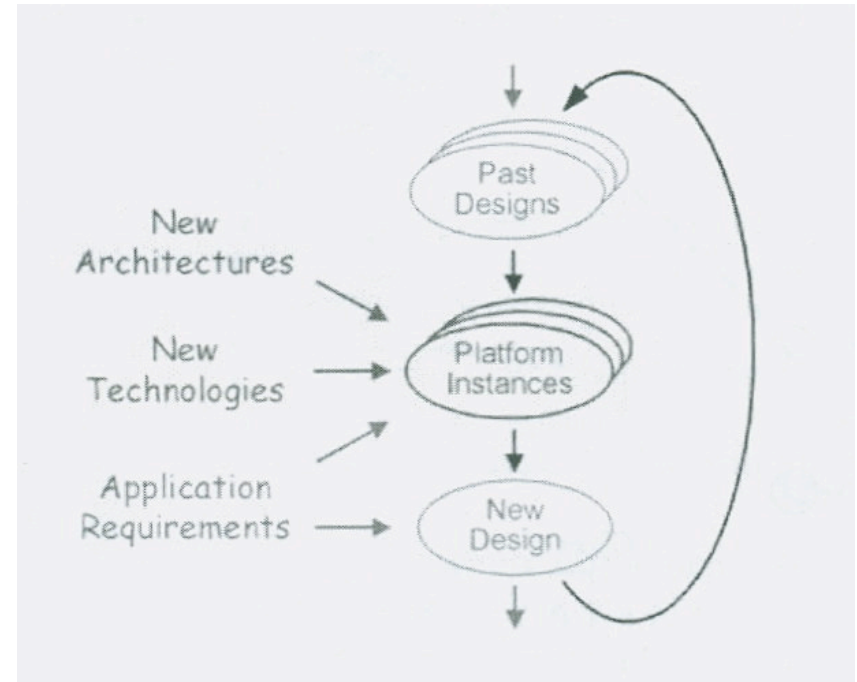


iCar Interface



System Modeling, Analysis & Design

- The iCar is a Platform-based design
- It will build upon current technologies from Apple and car manufacturers that have already been tested and proven
 - iPod & iPhone touch screen
 - iPhone Wi-Fi and EDGE data network connectivity
 - Navigation & Car stereo technologies
- It will borrow from those past designs and facilitate future product development
- It will reduce time to market in order to stay competitive, while decreasing costs



Austin, pg. 174

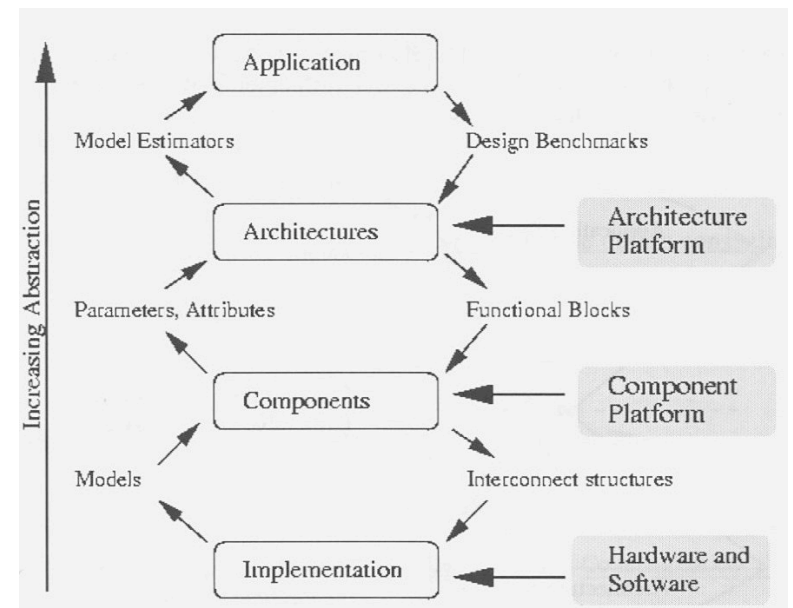
System Modeling, Analysis & Design

- Will be designed as an option for various VW models
- Will replace the current navigation option (\$1800)
- Building upon current proven technologies will aid in keeping cost down while providing a more desirable and usable system



System Modeling, Analysis & Design

- Application:
 - Radio
 - Navigation
 - Etc.
- Architectures:
 - Apple interfaces
 - Automobile audio/visual and navigation systems
- Components:
 - Touch screen
- Implementation:
 - Software (iPhone)
 - Hardware sub-components



Austin, pg. 177

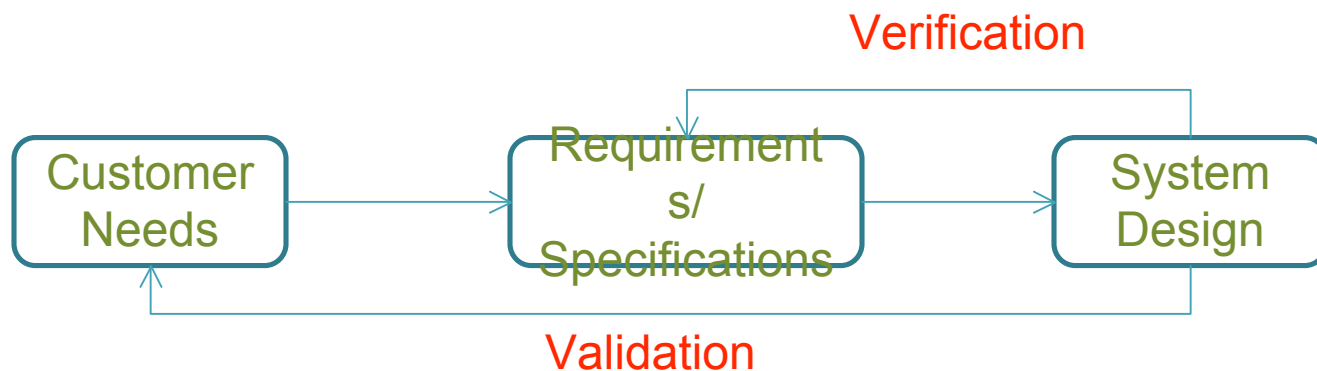


Requirements Specifications & Constraints

- Completed requirements traceability matrix
- The iCar shall provide a safe and user-friendly interface, similar to that of the iPhone, to control specified interior functions
- Level 2 Requirements:
 - iCar shall control all stereo functions
 - iCar shall control all navigation functions
 - iCar shall control climate control functions
 - iCar shall control the front seat settings
 - iCar shall provide all OBC functions
- Constraints:
 - iCar shall not exceed \$1800 in cost to the consumer
 - iCar shall not exceed current vehicle system dimensions
 - The touch screen response shall be less than 0.5 seconds
 - iCar shall have a 10 year design lifetime

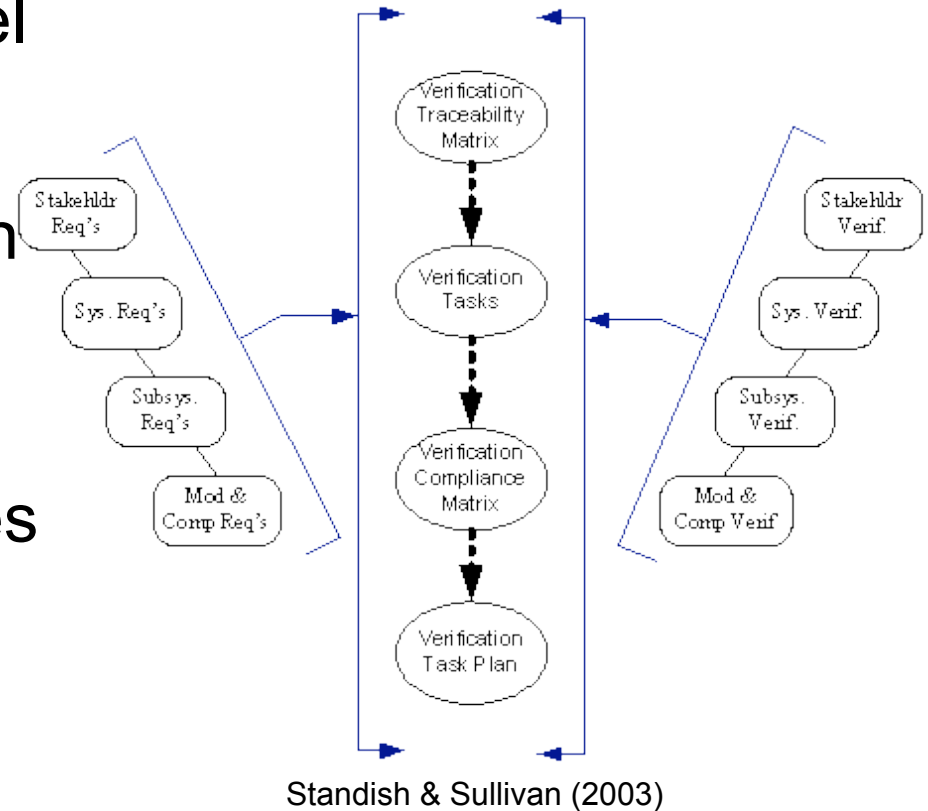
System Validation & Verification

- Verification: Does the system meet requirements
 - “Are we building the product right?”
- Validation: Is the system the correct product
 - “Are we building the *right* product?”



System Validation & Verification

- Based on the V-model of systems development
- Generated verification traceability matrix
- Currently working on the requirements verification procedures
- Will generate verification task plan
- These methods and procedures provide easy forward and backward traceability



Questions

