The Charlatans
EOSP Fall 2002

April Navarro
Wei Zhang

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Agenda

- People
- Project Overview
- Key Requirements
- Process Description
- Risk Driven Approach
- Technical Progress
- Project Artifacts
- Lessons Learned
- Next Steps
- Questions
People

- Clients
  - Daniel Plakosh
  - Scott Hissam

- Mentors
  - Cliff Huff
  - Grace Lewis

- Team Members
  - Matt Bass
  - Dawei Gu
  - Lalit Jina
  - April Navarro
  - Wei Zhang

Project Scenario
Project Overview

- Software Applications
  - Palm Application
  - PC Application

- Design and Implementation Report
  - Project and Requirements Overview
  - Software Design
  - Knowledge Documentation
  - Decision-Making Documentation

Key Requirements – Palm Application

- Functional Requirements
  - Control Watch Remotely
  - View Images
  - Edit Images
  - Beam Images

- Other Requirements
  - **Performance**: image compression /decompression should take 6 seconds or less
  - **Portability**: needs to run on any device that supports Palm OS 3.1 thru 4.1
Key Requirements – PC Application

- Functional Requirements
  - View Image
  - Import/Export Image

- Other Requirements
  - Portability: must be compatible with Windows 9X, WIN2K and XP platforms

Key Requirements – Documentation

- Knowledge Documentation
  - Knowledge Baseline
  - Knowledge Discovery
  - Knowledge Gained

- Decision Documentation
  - Development Strategy
  - Work Breakdown
  - Technology Issues
  - Process & Selection Criteria
Tailored TSP Process

- Team Goals
- Defined Roles
- Cyclic Development
  - Launch
  - Track
  - Postmortem

TSP Cycles

- Cycle 1 – Learn Basics I
  - 09/17 to 10/01
  - Learn TSP process
  - Learn to work effectively as a team
- Cycle 2 – Learn Basics II
  - 10/02 to 10/29
  - Learn Palm basics
  - Identify risks
  - Produce required documents
- Cycle 3 – Learn Technology
  - 10/30 to 11/26
  - Gain a better understanding of the technologies
  - Produce required documents
Risk Driven Approach

Example – Requirement in RFP
Watch can be controlled remotely via the IR (Infrared) interface and communicates control information over **IrComm** (Infrared Communications Protocol) using a **proprietary protocol**
Example – Risks of the Requirement

- **IrComm** – Don’t know Infrared protocol. May not be able to meet requirements

Example – Prioritized List of Risks

<table>
<thead>
<tr>
<th></th>
<th>IrComm</th>
<th>Watch Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Impact</strong></td>
<td>Marginal</td>
<td>Critical</td>
</tr>
<tr>
<td><strong>Probability</strong></td>
<td>10% - 50%</td>
<td>10% - 50%</td>
</tr>
<tr>
<td><strong>Risk Exposure</strong></td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td><strong>Timeframe</strong></td>
<td>Mid Term</td>
<td>Mid Term</td>
</tr>
</tbody>
</table>
Example – Mitigation Strategy

- Translate the watch protocol documents
- Prototype watch protocol

Example – Risk Mitigation in Cycle 2 & 3

- WBS# 2.6.1 – Investigate watch protocol specification
- WBS# 3.6.1 – Research on IrDA/IrComm programming
- WBS# 3.6.2 – Prototype watch protocol
- WBS# 3.6.3 – Translate watch protocol specification
Example – Risk Evaluation in Cycle Post Mortem

- IrTran-P (Infrared Transfer Picture Specifications) is not supported by Palm SDK
- Knowledge of Palm OS file management is needed.
- Knowledge of JPEG is needed.

Technical Progress

- Hardware Comparison & Selection
  - Examined 35 models – 7 models obtained for development
- Programming Language and Development Environment Comparison & Selection
  - Examined 13 languages – C/C++ selected
  - Examined 14 tools – CodeWarrior for Palm v8 selected
- Palm OS Version/Feature Survey
- Palm OS Emulator (POSE) Survey
- Translation of Japanese Watch Protocol Specifications
Risk Reduction Prototypes

- Watch Protocol Prototype
  - Completed and exercised 6 watch features
  - Discovered new challenge – IrTran-P is not supported by Palm SDK
- IrComm Prototype
  - Completed and exercised ExchangeManager
  - Discovered new challenge – IrComm was not introduced to Palm OS until v3.3
- JPEG Compression/Decompression Prototype
  - In progress
  - Discovered new issue – Free JPEG Library from IJG requires extra porting work for Palm OS

Project Artifacts

- Team Notebook
- Statement Of Work (SOW)
- Software Project Management Plan (SPMP) Draft
- Software Requirement Specification (SRS) Draft
- Risk/Issues List
- Risk Management Plan
- Configuration Management Plan (CMP)
- Quality Assurance (QA) Plan
- Meeting Process
- Planning Documents
- Knowledge Baseline
Lessons Learned

- Keep it simple
- “Better is the enemy of good enough”
- Process pays off
- Knowledge sharing is critical
- Communication is important

Mid Semester Presentation Suggestions

- Use resources available
  - Risk management expert at the SEI – Ray Williams
  - Architecture resources at the SEI
  - Palm programming experts from past studio teams
- High level architecture
  - Focus development
  - Develop draft architecture
- Non-technical risks
  - Identified during risk evaluation
Next Steps – Spring 2003

- Transition to new team roles
- Design System Architecture
- Develop Software Design
- Develop Test Plan
- Continue work on prototypes

For more information, please visit our web site at
http://dogbert.mse.cs.cmu.edu/charlatans/

Questions?