Raytheon

NORTHERN ARIZONA UNIVERSITY

Release Lanyard Project

October 8th 2012

Team 5

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Overview

- Introduction
- Needs statement
- Problem statement
- Goals
- Objectives
- Constraints
- House of Quality
- Gantt Chart

Introduction

- Raytheon History and Area Expertise
- Current release lanyard design

Needs Statement

- Current design for an arming system lanyard does not address issues relating to extreme temperatures and environmental effects

Problem Description

- Issues with freezing temperatures and debris
- Issues not activating weapons system
- Issues with poor installation

Goals

- To design a reliable, low cost release lanyard that can withstand extreme temperatures and environmental effects

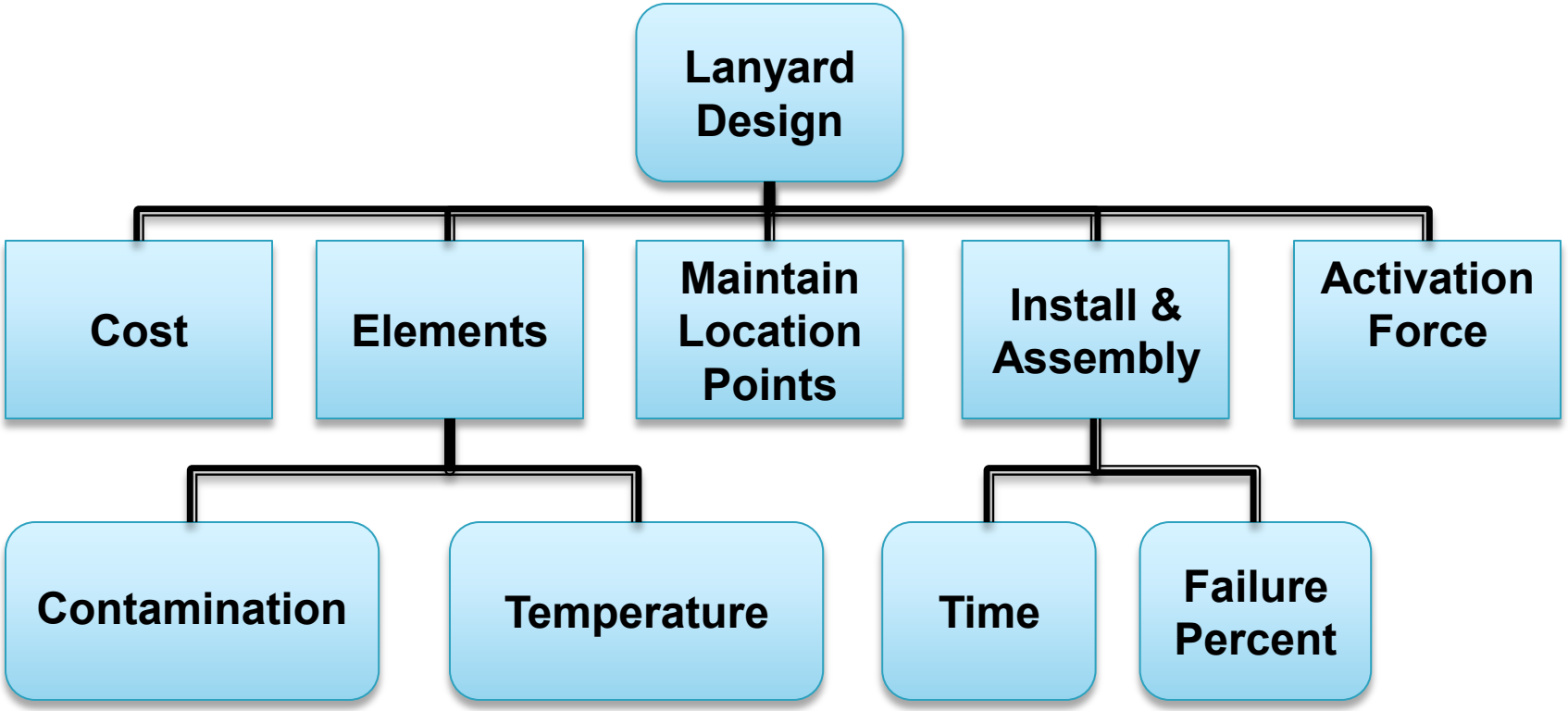
Objectives

Objectives	Basis for Measurement	Units
Inexpensive	Manufacturing Cost Based on Current Design	$$
Maintain Current Location of Devices	Locations Based on Current Design	Meters
Installation and Assembly	Timed Trial	Seconds
Successful Activation of Devices	Minimum Force Required	Newtons
Low Susceptibility to Contamination	Amount of Contamination Required to Induce Failure	Kilograms
High Performance Reliability	Number of Successful Attempts vs. Failed	%
Increase Maneuverability	Pivot Radius of Devices	Meters

Constraints

- Can't change lanyard attach point
- Testing in harsh conditions
  - Extreme temperature ranges
  - Contaminants and debris
  - Weather conditions
- Cost

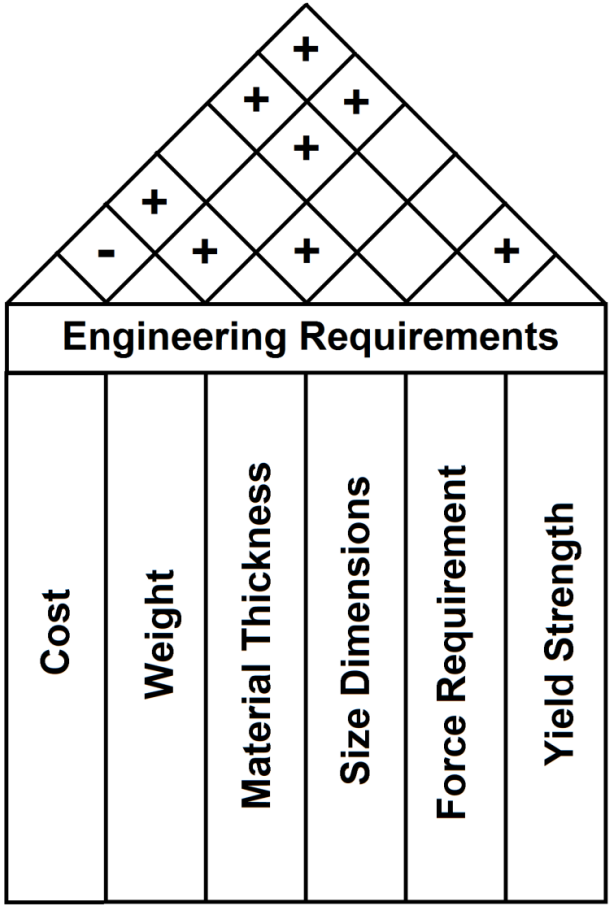
Criteria Tree



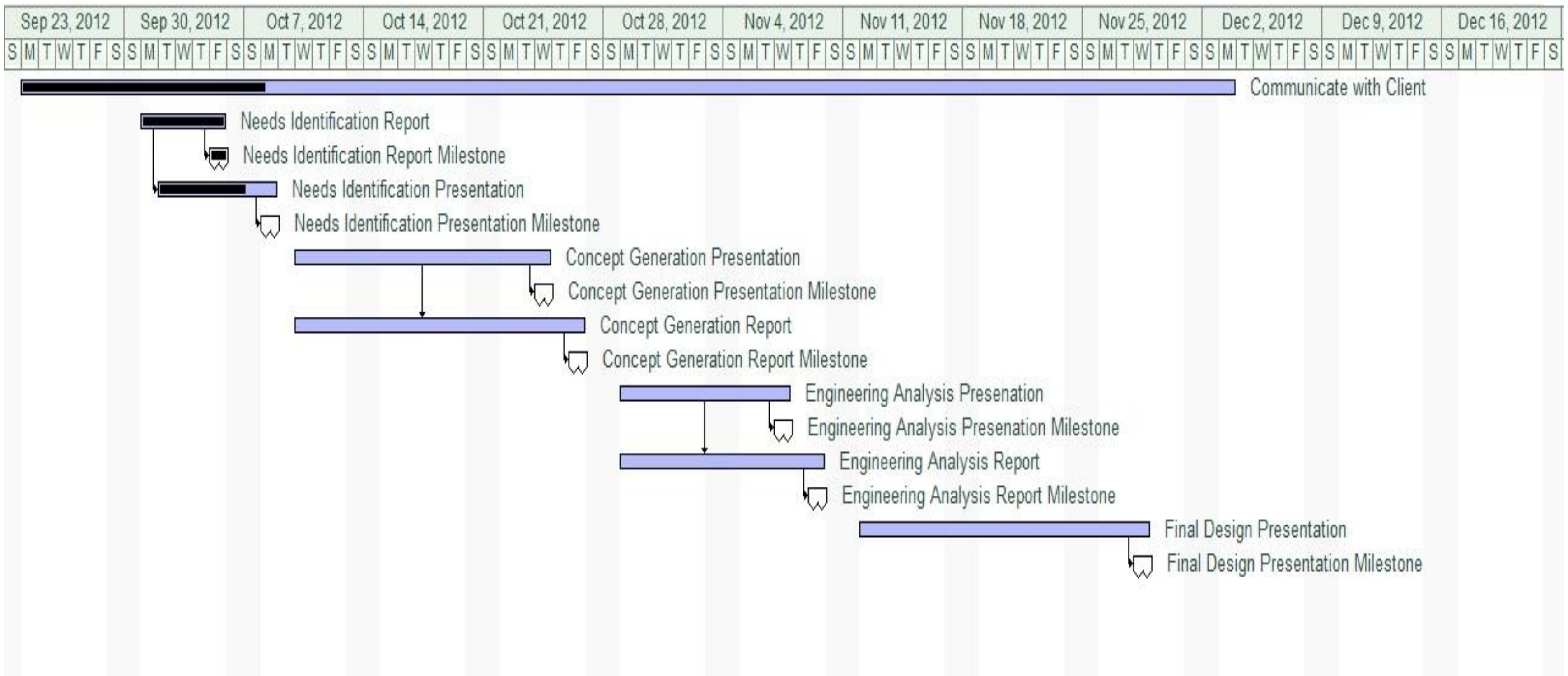
Quality Functional Development

	Engineering Requirments					
	Material Thickness	Weight	Cost	Yield Strength	Force Requirment	Size Dimensions
Activates Weapon					X	
Inexpensive	X		X			
Ease of Assembly			X			
Ease of Installation			X			
Impervious to Environmental Conditions	X	X		X		
Set Installation Locations			X			X
Units	m	kg	$	Mpa	N	m^2
	Engineering Targets					

House of Quality



Gantt Chart


Sep 23, 2012
Sep 30, 2012
Oct 7, 2012
Oct 14, 2012
Oct 21, 2012
Oct 28, 2012
Nov 4, 2012
Nov 11, 2012
Nov 18, 2012
Nov 25, 2012
Dec 2, 2012
Dec 9, 2012
Dec 16, 2012
Communicate with Client
Needs Identification Report
Needs Identification Report Milestone
Needs Identification Presentation
Needs Identification Presentation Milestone
Concept Generation Presentation
Concept Generation Presentation Milestone
Concept Generation Report
Concept Generation Report Milestone
Engineering Analysis Presenation
Engineering Analysis Presenation Milestone
Engineering Analysis Report
Engineering Analysis Report Milestone
Final Design Presentation
Final Design Presentation Milestone

Gantt Chart


Sep 23, 2012
Sep 30, 2012
Oct 7, 2012
Oct 14, 2012
Oct 21, 2012
Oct 28, 2012
Nov 4, 2012
S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T
Needs Identification Report
Needs Identification Report Milestone
Needs Identification Presentation
Needs Identification Presentation Milestone
Concept Generation Presentation
Concept Generation Presentation Milestone
Concept Generation Report
Concept Generation Report Milestone

References

- Stephen Larimore
  - Raytheon
  - Department Manager
- Kelly Covington
  - Raytheon
  - Mechanical Engineer

Questions?