



Laser Pointer

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Presentation Overview

- Sponsor Introduction
- Current Situation
- Need Statement
- Project Goal
- Objectives
- Operating Environment
- Constraints
- Schedule
- Conclusion

Sponsor Introduction

Sponsor

- Edwin Roy Anderson

Department

- Physics and Astronomy at Northern Arizona University

Title

- Support Systems Analyst

Reason For Sponsoring Project

- Teaches astronomy to groups

Current Situation

- Uses 5mW laser
- Difficult to use in large groups
- More powerful laser too dangerous

Need Statement

Mr. Anderson is unable to give star gazing talks to large groups of people because the laser isn't powerful enough. More powerful lasers are too dangerous to be handheld.

Project Goal

The goal of this project is to design and construct a mechanism to safely focus the attention of an audience towards individual stars or constellations while observing the night sky.

Objectives

- Controllable laser pointer mechanism
- Laser pointer mounting elevation above ground greater than 6' 5"
- Pointer resolution at $\frac{1}{2}^\circ$
- Collapsible to fit in cargo compartment of a small car
- Weight - One person mobility
- Rapid response time

Operating Environment

- Primary location – NAU observatory grounds
- Secondary locations – open field with allowable star gazing

Operating Conditions

- High winds – Flagstaff Spring and Fall
- Low temperatures – Flagstaff Winter

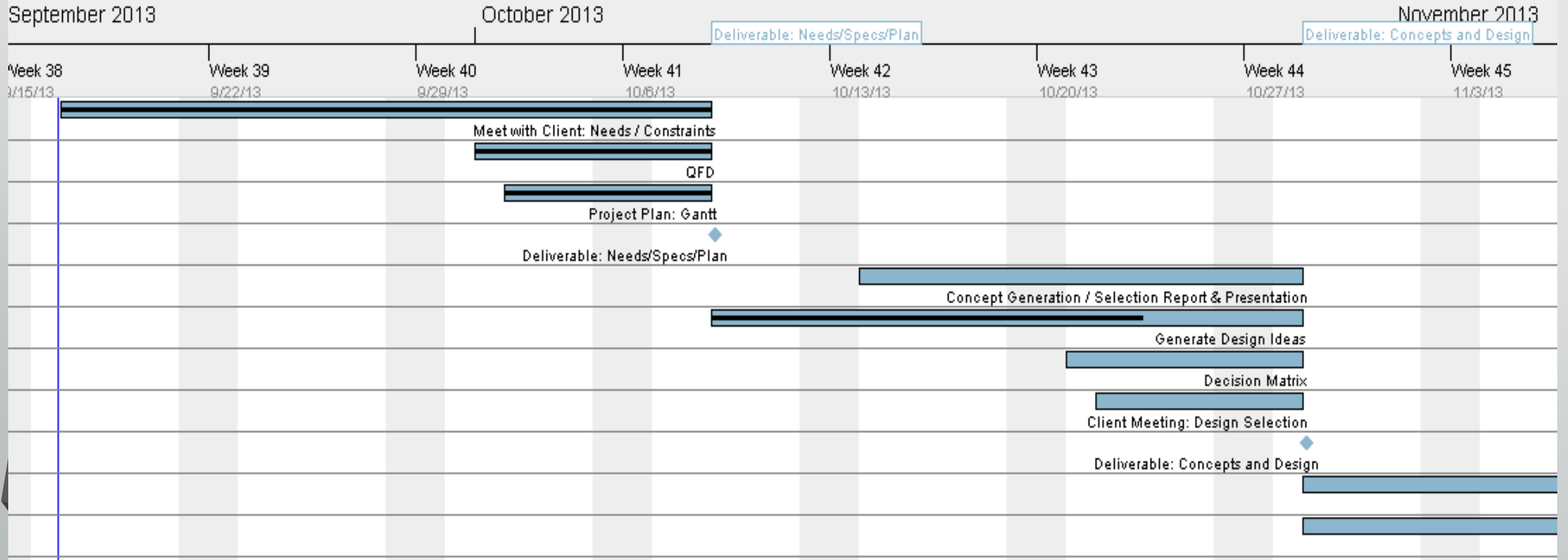
Constraints

- Must operate in safe manner i.e. no possibility of laser beam pointing into a person's eyes
- Laser must toggle on and off upon user command
- Laser unit must be removable from device
- Must remain within allowable budget
- Must comply with all local, state, and federal regulations

Regulatory Constraints

- AZRRA – AZ Radiation Regulatory Agency
 - Actively conduct inspections
 - Need administrative control of laser
- Legal compliance:
 - Controlled location and laser use
 - Labeling
 - Training
- Our design will be registered with AZRRA
 - Determine legal compliance

Project Plan



Conclusion

- Introduced Sponsor
- Current Situation
- Statement of Needs
- Project Goals
- Objectives
- Operating Environment
- Constraints
- Schedule

References

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Questions?