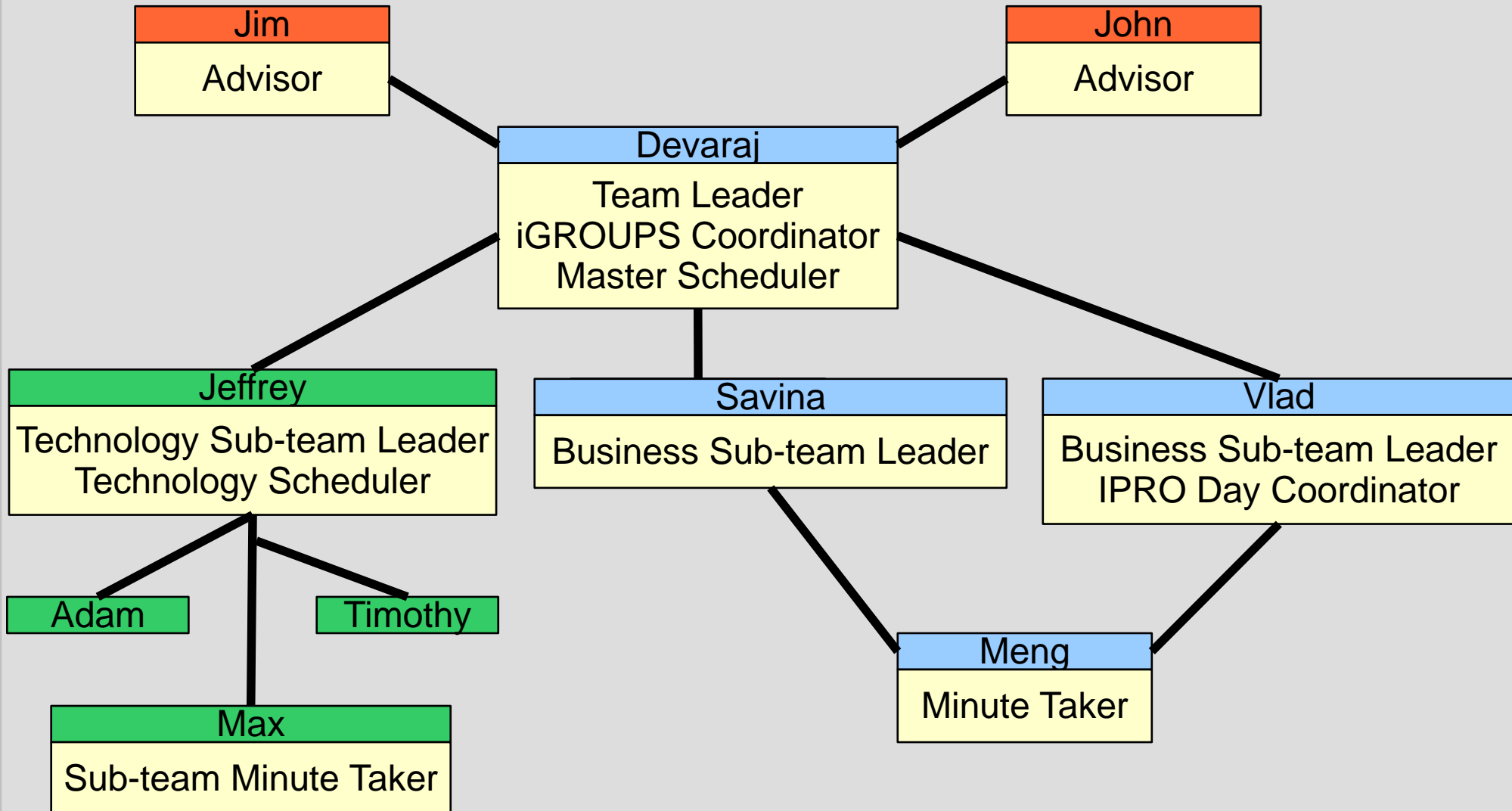# IPRO 355

Augmented Reality for Construction Safety

Introduction

- Team Organization
- Problem and Our Solution
- Goals and Progress
- Project Risks
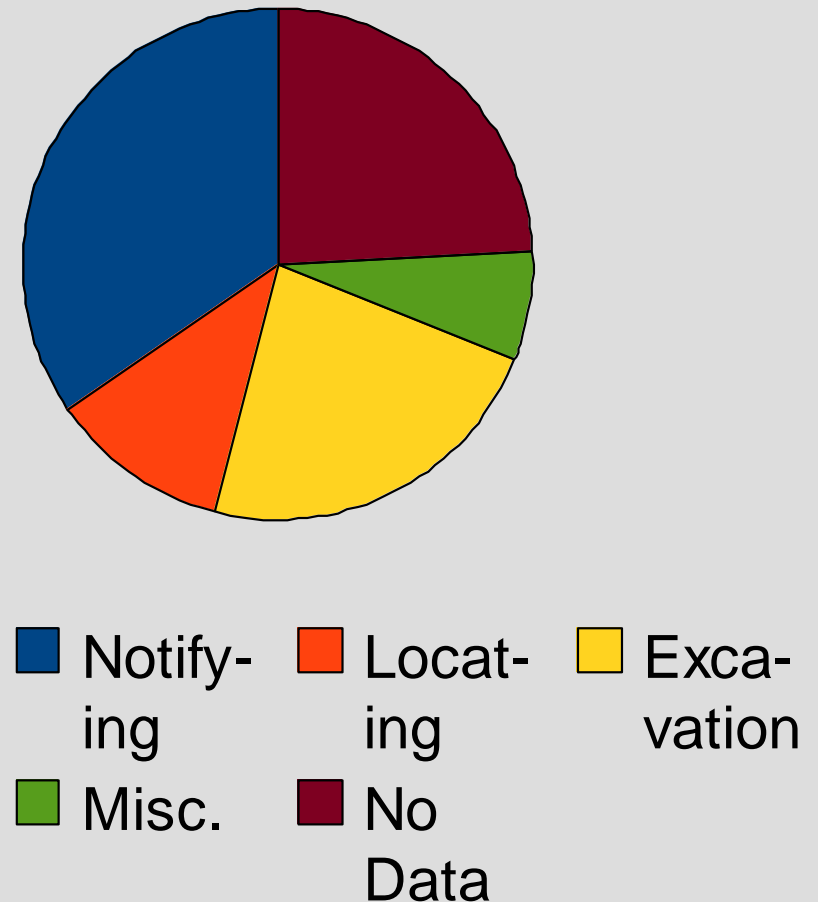- Ethics
- Project Issues
- Summary
- Questions

Team Organization

Problem Statement

- 5,000+ fatalities (2006)
- 51,600 accidents (2005)
- $250 million (average)

- Augmented Reality system

- Prevent locating and excavation accidents
- Potentially reduce accidents by 33%
- Save $5000 per accident

Accidents by type

■ Notify-ing ■ Locat-ing ■ Exca-vation
■ Misc. ■ No Data

Business Goals and Progress
Overarching Objective: Create a Business Plan

- Goals
  - Market repositioning
  - Intellectual property
  - Marketing Research
  - Exit strategy
  - Revenue model

- Status
  - Construction safety
    - Accidental rate
  - Patent information
  - Continued research
    - Questionnaire
    - Interview contacts
  - Possibilities
  - Budget

Technology Goals and Progress
Overarching Objective: Create a Working Prototype

- Goals
  - Design product prototype

  - Acquire necessary hardware

  - Develop software to utilize positioning

  - Integrate data from electronic sources

  - Obtain data needed for operation

- Status
  - Defined system architecture
  - Determined technologies to use

  - Ordered components required

  - Wrote the mathematical model for the Dead Reckoning system
  - Reviewed APIs for SketchUp from Google

  - Researched utility location services

Project Risks

- Entering new market
  - Need market research
    - Time-consuming
  - Create product awareness

  - Solution: create industry contacts

- Full prototype development
  - Insufficient resources
    - Exit strategy
  - Place to work and store materials
    - Lab space requested

Ethical Considerations

- Overarching principle:
    - Augmented Reality system
        - Accurate
        - Reliable
        - Timely
    - Save lives
    - Prevent accidents

- 7 layers
    - Pressures, risks, can ons, measures

Project Issues
Ineffective Communication

- Impeded timely completion of deliverables
- Root Causes:
  - Division of the team
  - Incomplete explanations

- Resolution: Increase communication
  - E-mails
  - Team meetings
  - Weekly presentations

- Results: Mid-term report is ahead of schedule

Accomplishments So Far

- Identified apparently unserved market
- Defined system architecture
- Chose appropriate technologies
- Perfect score on project plan
- Created Code of Ethics
- Ordered components
- Questionnaire

Questions?