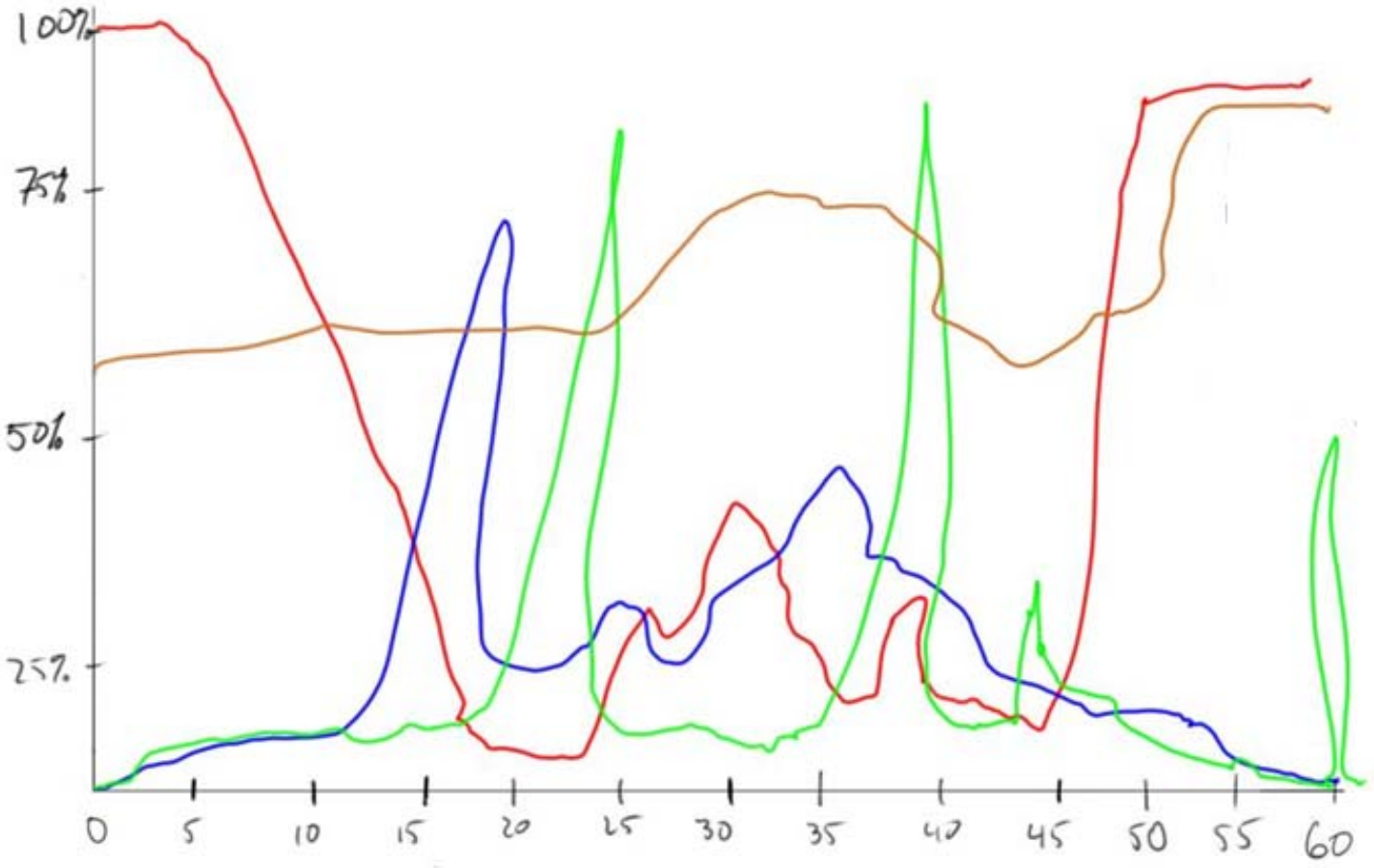
Solution Design Presentation

EECE401 Senior Design I



Presentation Event (Nov 19)

Presentation Contents

- Focus: First 2 phases of design process
  - (1) Problem definition (2) Solution generation
- Contents of the presentation
  - Why (Background): Needs and demands
  - What (Problem Definition):
    - (1)Problem Definition/Statement,
    - (2)Design Requirements,
    - (3) Standards & Socio-Cultural Constraints to comply
  - How(Solution Generation):
    - (1) Individual Ideas,
    - (2) Top 2 Design Concepts,
    - (3) Top Design Selection through (a) Pros & Cons and (b) Decision Matrix
    - (4) Details of the Top Design (using description and figures (with numbers).
  - Conclusion: summary

Big Difference between Written Report and Oral Presentation - 1

- Pace
  - Written Report:
    - Readers have freedom
    - own pace
    - control the amount of time
    - Read parts and change order
  - Oral Presentation:
    - **Listeners have no freedom**
    - must keep up with the speaker
    - no control over the time and topics

Big Difference between Written Report and Oral Presentation - 2

- Content and Order
  - Written Report:
    - Readers can scan, reread, refer from text to illustrations and back, or stop to consult another text or a dictionary
  - Oral Presentation:
    - **Listeners depend on the speaker** making everything clear and in logical sequence

Big Difference between Written Report and Oral Presentation - 3

- Feedback
  - Written Report
    - No quick feedback to writers
  - Oral Presentation
    - **Immediate Feedback to presenters (Q&A Session)**

Big Difference between Written Report and Oral Presentation - 4

- Length:
  - Written Report
    - vary substantially
  - Oral Presentation
    - carefully planned **not to exceed the pre-established time** allocated

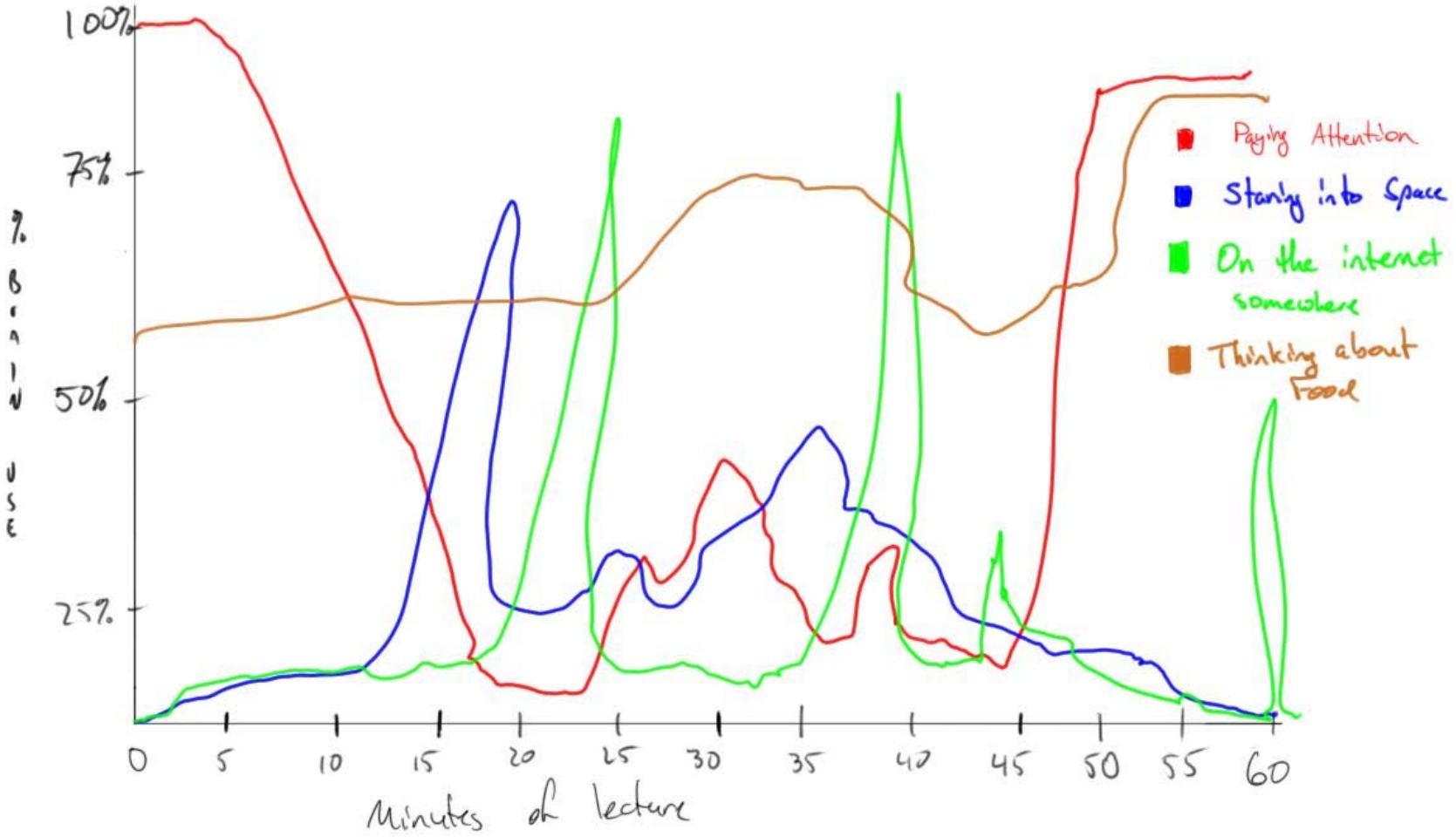
Big Difference between Written Report and Oral Presentation - 5

- Nonverbal Cues
  - Written Report
    - less dependent on nonverbal cues
  - Oral Presentation
    - Strong role of **body language**, tone, and other nonverbal cues

Body Language -- Is this true interpretation?

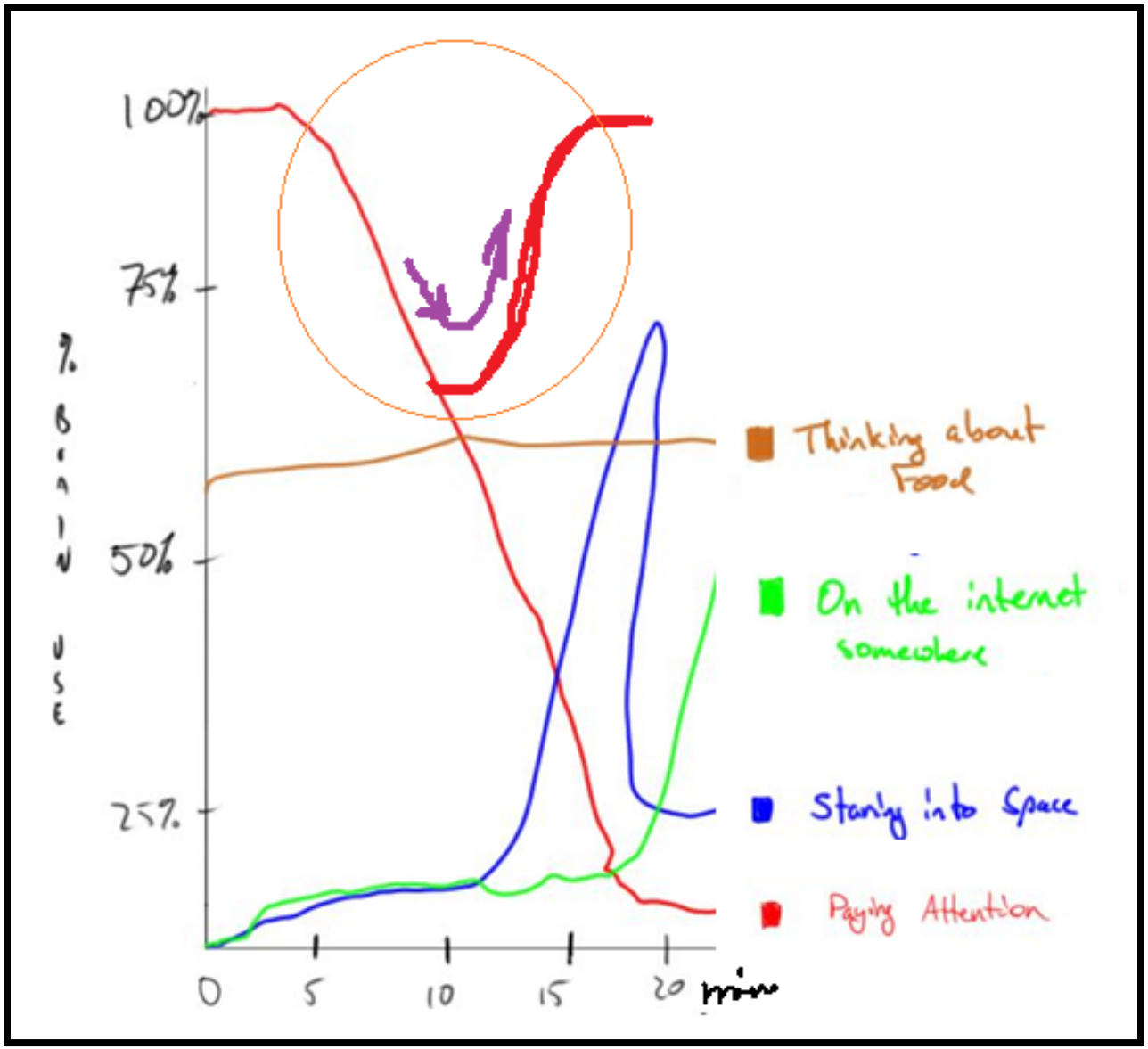
BASS/SCHULER entertainment

How do we present better?
Attention Span



brucemctague.com/attention-span-part-1-it-aint-shorter-2

How to keep the attention high for 20 minutes?

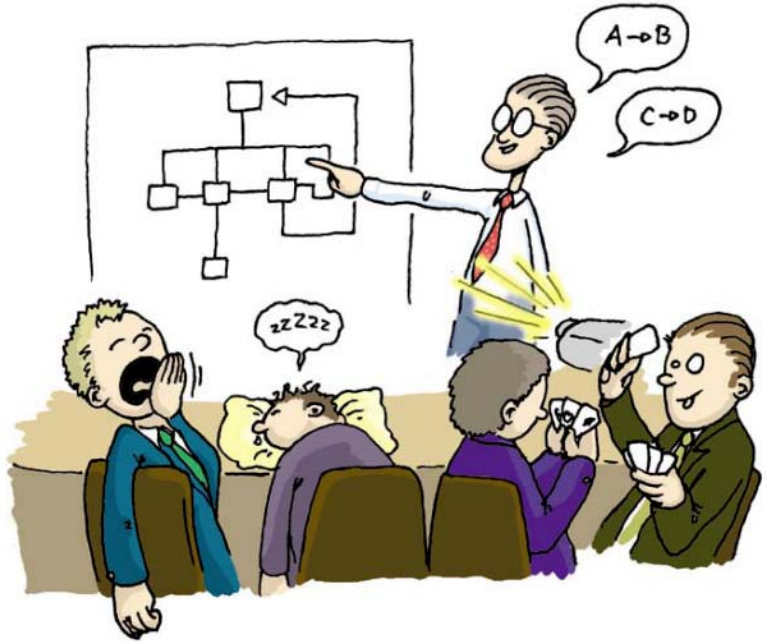


3 dimensions of for good Oral Presentation

- A. Content
  - Good material
  - Correct delivery of key messages
  - Know you subjects- Do your homework
- B. Visuals
  - Heavily Graphic, Legible font size
  - “Everything on a slide must contributes to its purpose”
- C. Delivery
  - Effective Presentation

A. Presentation Content

- Outline early
- Necessary amount of (background) information to convey message – Important highlights
- Hold audience interest: reinforce the motivation for the work being presented.
- Summarize the key points in the conclusion



Team Presentation Content -- Outline

- For each team
  - "We have a project…..
  - We do this project because… {**background**, need, demand, importance, etc}
  - In plain English, this is the **problem** statement of the project ….
  - In technical terms, this project aims to satisfy the following **design requirement**s…
  - So we worked and came up with **solution ideas from each member**, and we **selected** 2 solution ideas, and then **analyzed** them and **selected** the top design,
  - And this is the **final design** which has this hardware structure and software blocks (with figures), the operational principle is this and the final product would look like this. The implementation of this solution starts next semester
  - In conclusions, the project …… "

Solution Design Presentation Format - 1

- **Cover (1 slide)**
  - Title and Members

EyeView Navigation

...a new perspective ...the ideal alternative ...never get lost

Team Members

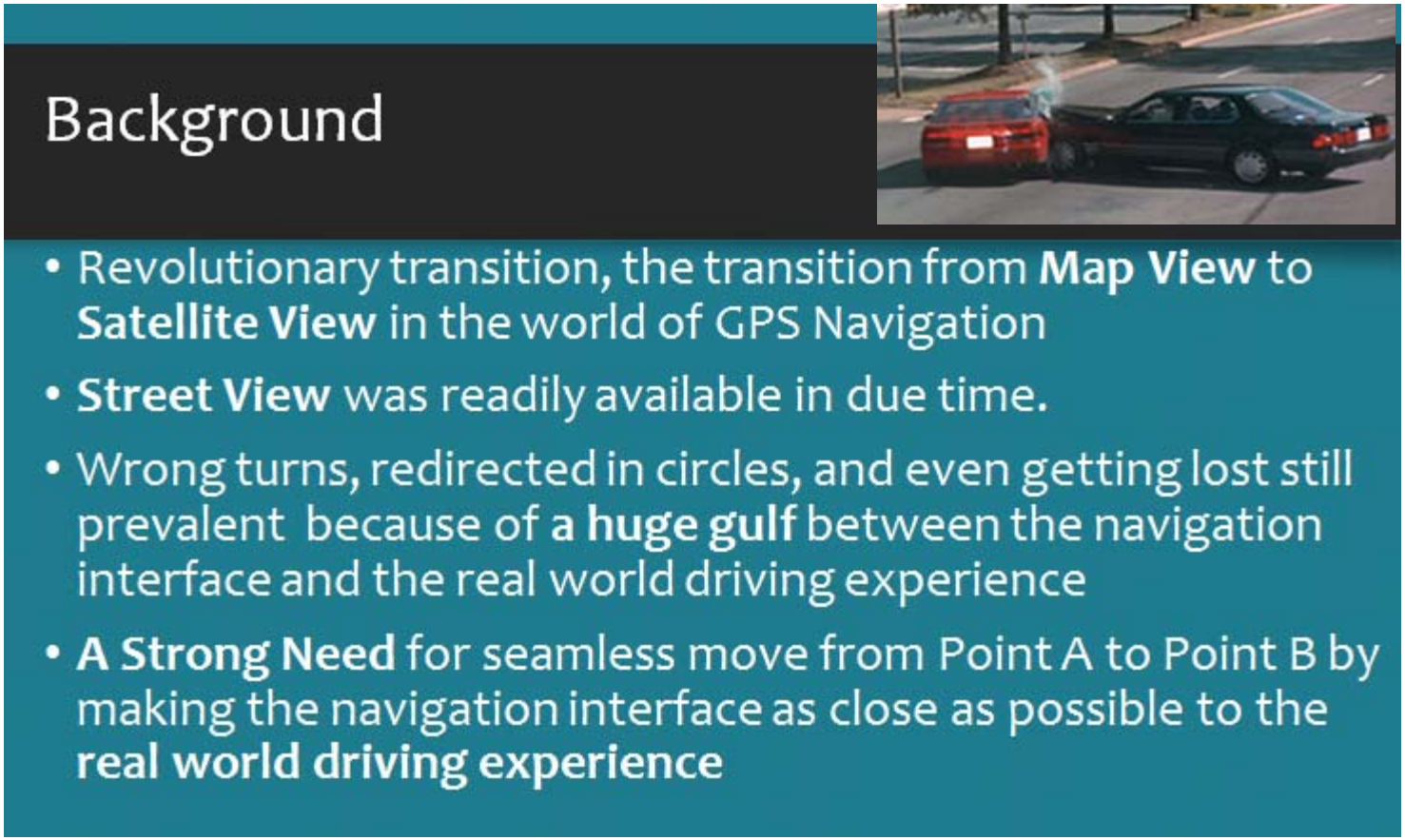
(Seniors):Yusuf Siyanbola (EE), Patrick Buah (CpE), Zach Spence (CpE), Jordan Wren (CpE), Emmanuel Ademuwagun (EE)

(Non-Senior Students): Adrian Gonzales (EE –Sp), Tracy Adams (CS-Sp), Drew Hill (CS-Fr), Christy Anderson (CV-fr), Francis Sammy (CpE-Jr)

Faculty Advisor: Dr. Charles Kim

Solution Design Presentation Format - 1

- **Cover (1 slide)**
  - Title and Members
- **Background (1- 2 slides)**
  - Background of the project (industry, technology, customer, etc)
  - Needs and demands in customer's point of view



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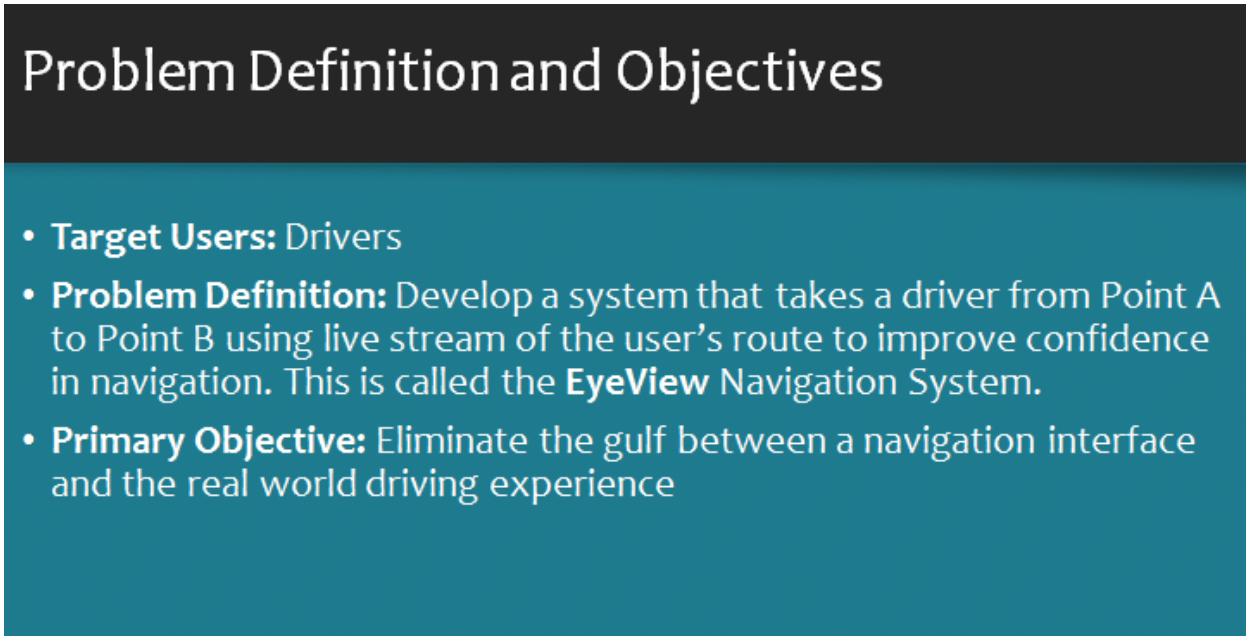
- **Problem Formulation (4-5 slides)**
  - Refined Problem Definition in Engineering point of view (1 slide)
  - Design Requirements – **Specification Part** (1 – 2 slides)
  - Standards and Regulations to comply (specific) (1 slide)
  - Constraints to work under (socio-cultural, financial, intellectual, etc) (1 slide)



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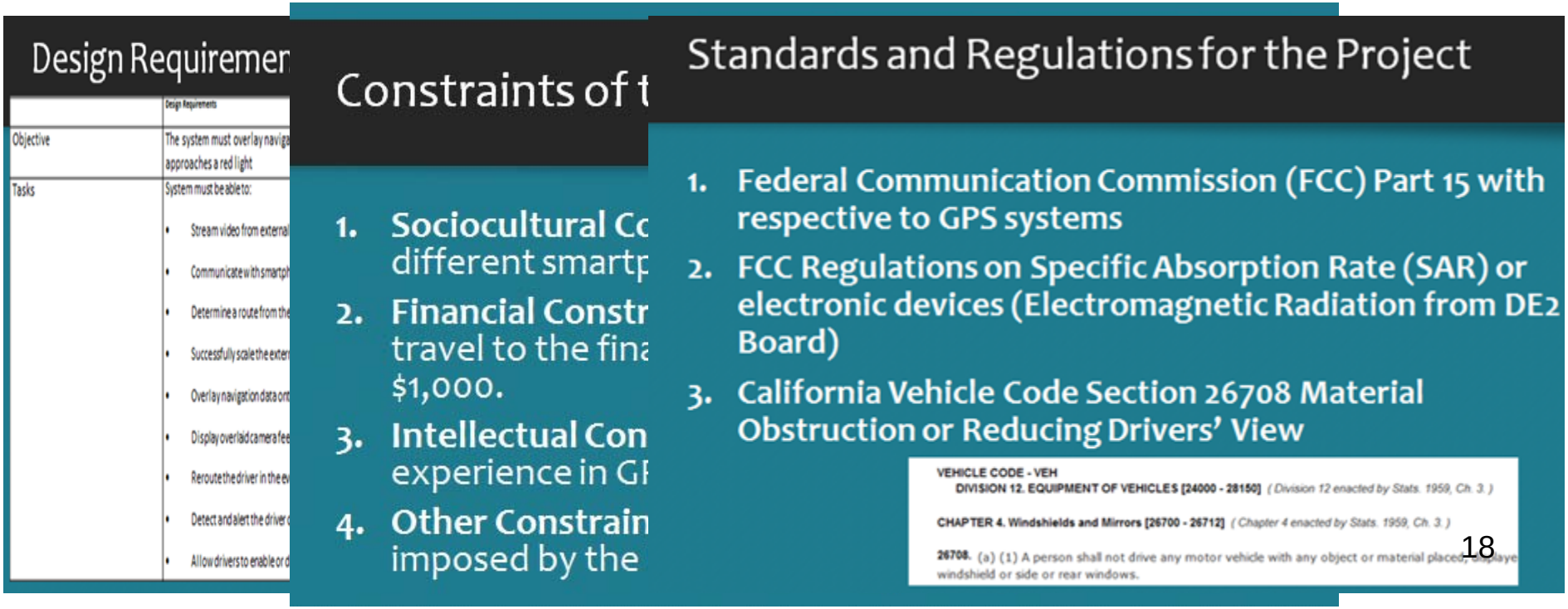

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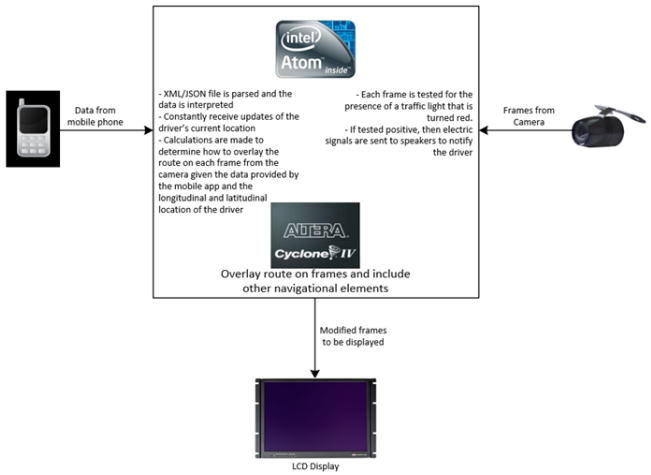
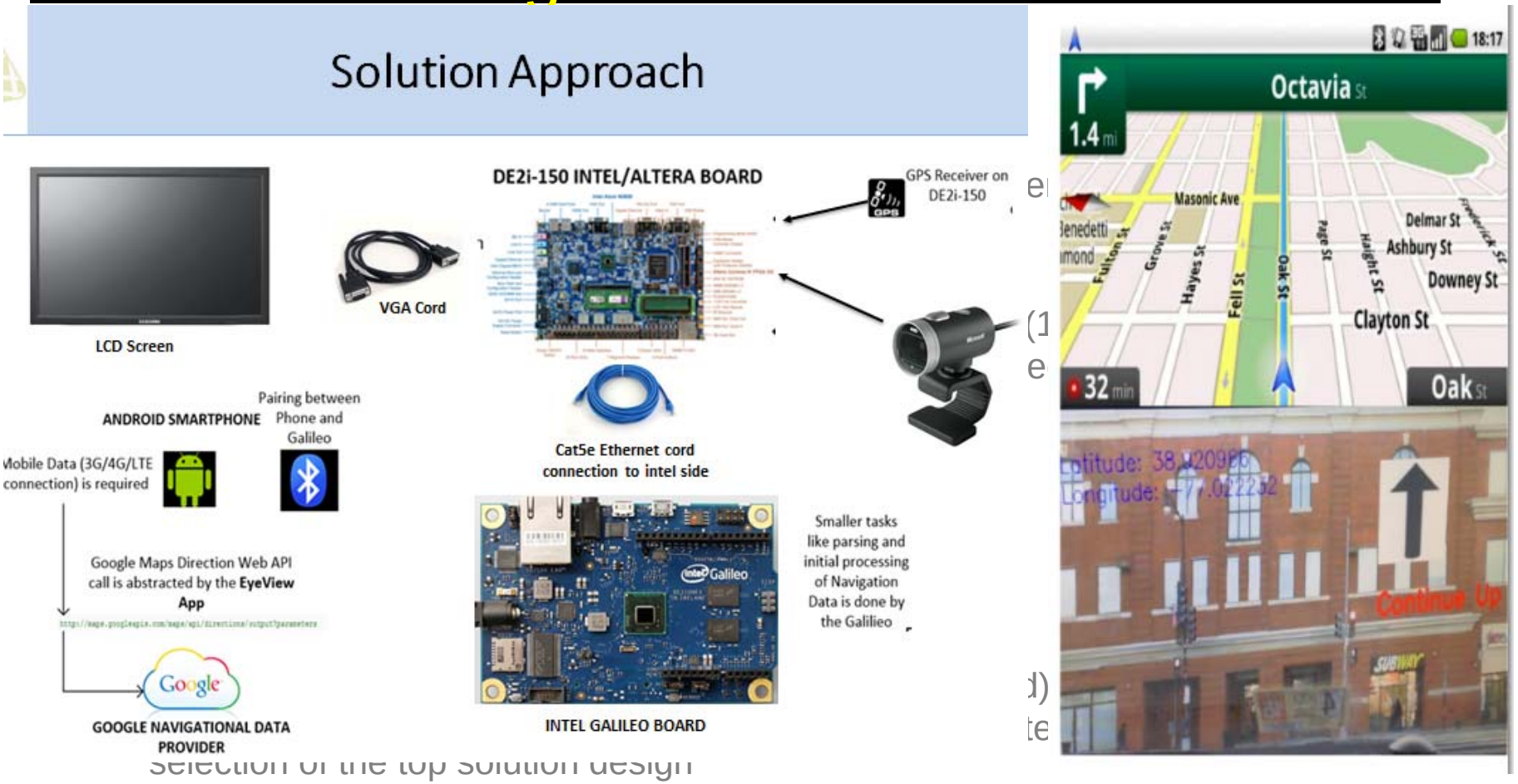
- **Solution Generation (4 - 5 slides)**
  - Individual ideas
  - 2 solutions designs selected (why these 2 are selected)
  - Analysis of the 2 designs (pros & cons, decision matrix - attributes, criteria, and weights) and selection of the top solution design

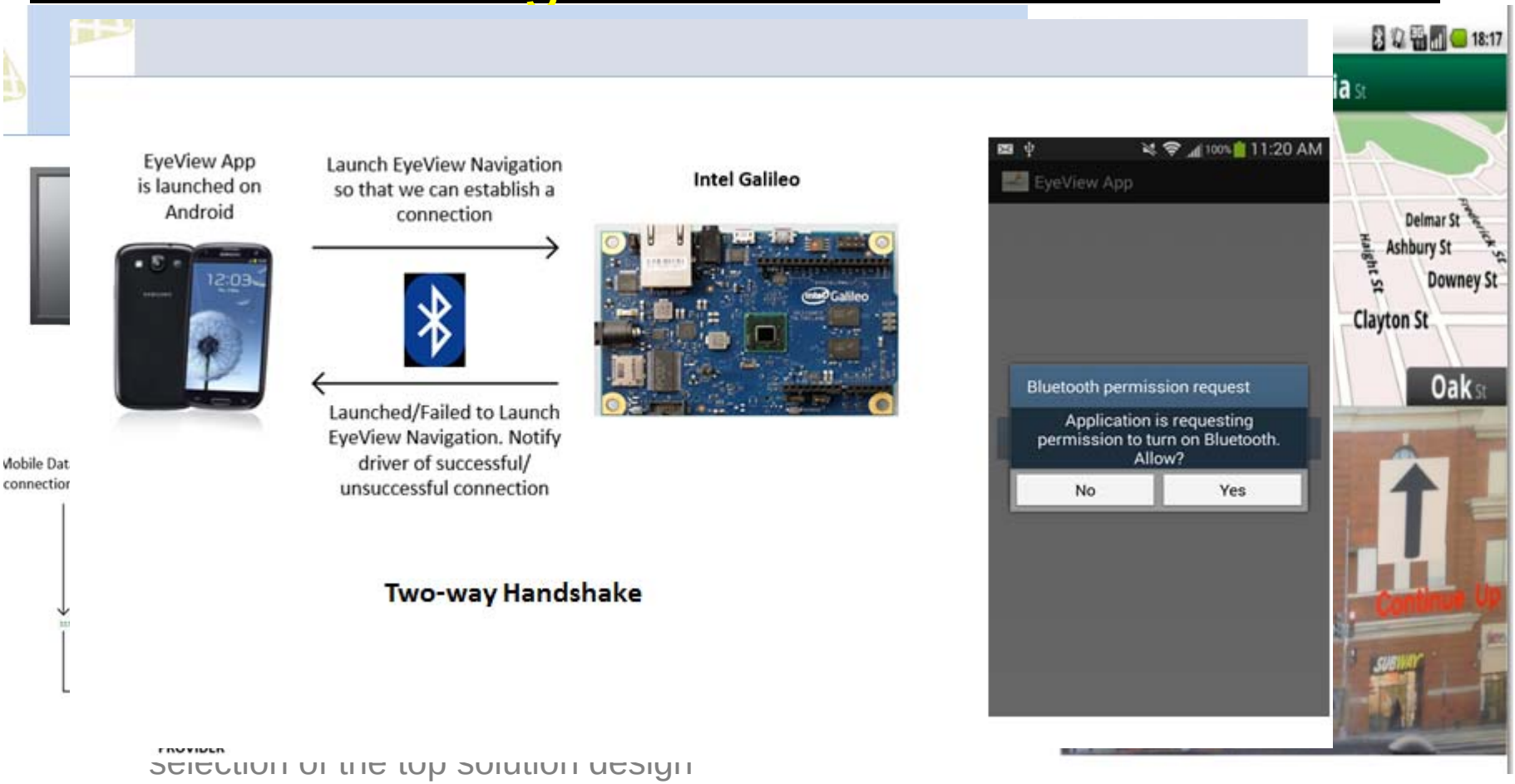


Solution Design Presentation Format - 1



- **Top Solution Design (2 – 3 slides)**
  - **Schematics of the Solution Design**
  - Detailed Description of the Design – Hardware and Software block diagram
  - Operation of the solution: how the final product would work

Solution Design Presentation Format - 1



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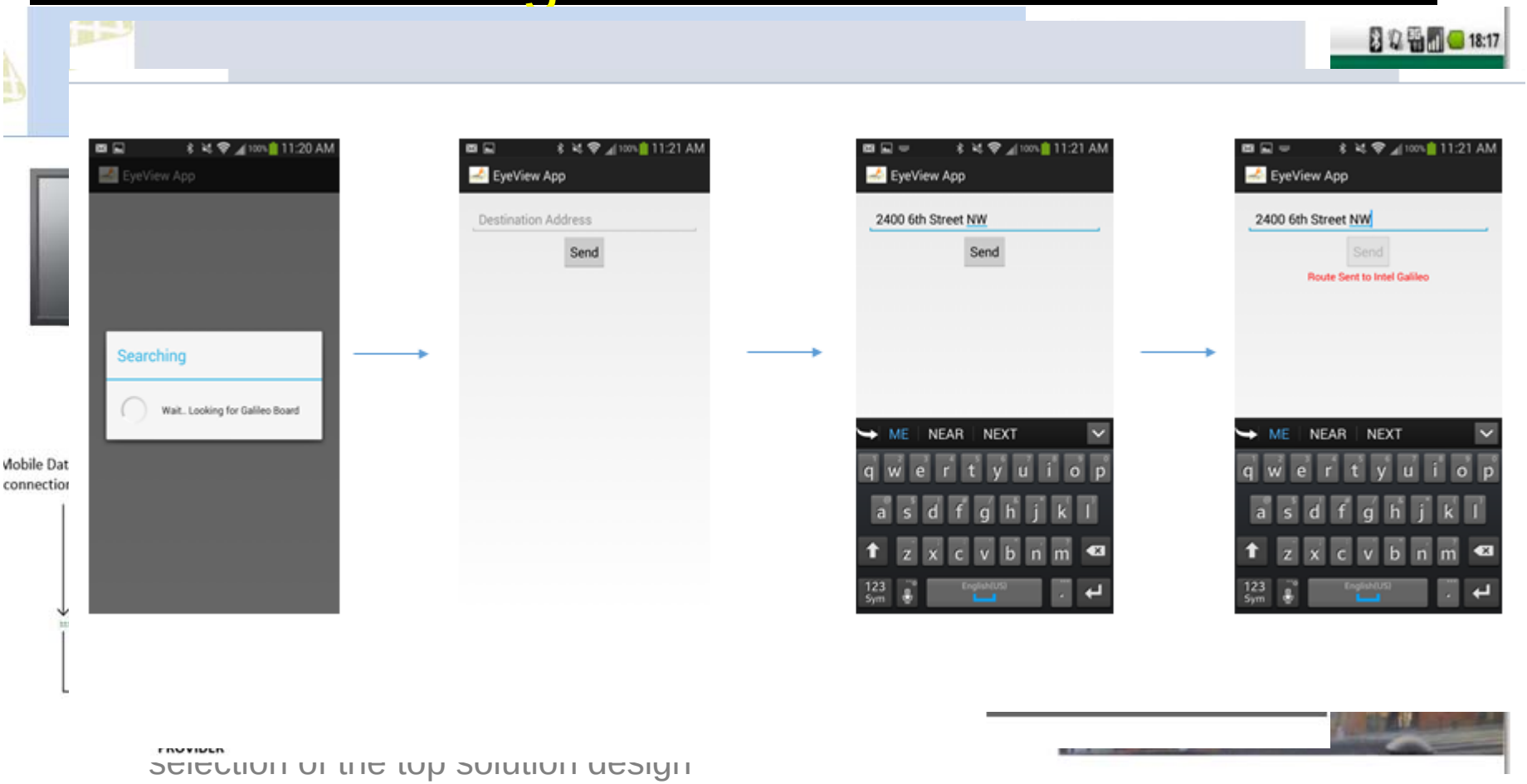

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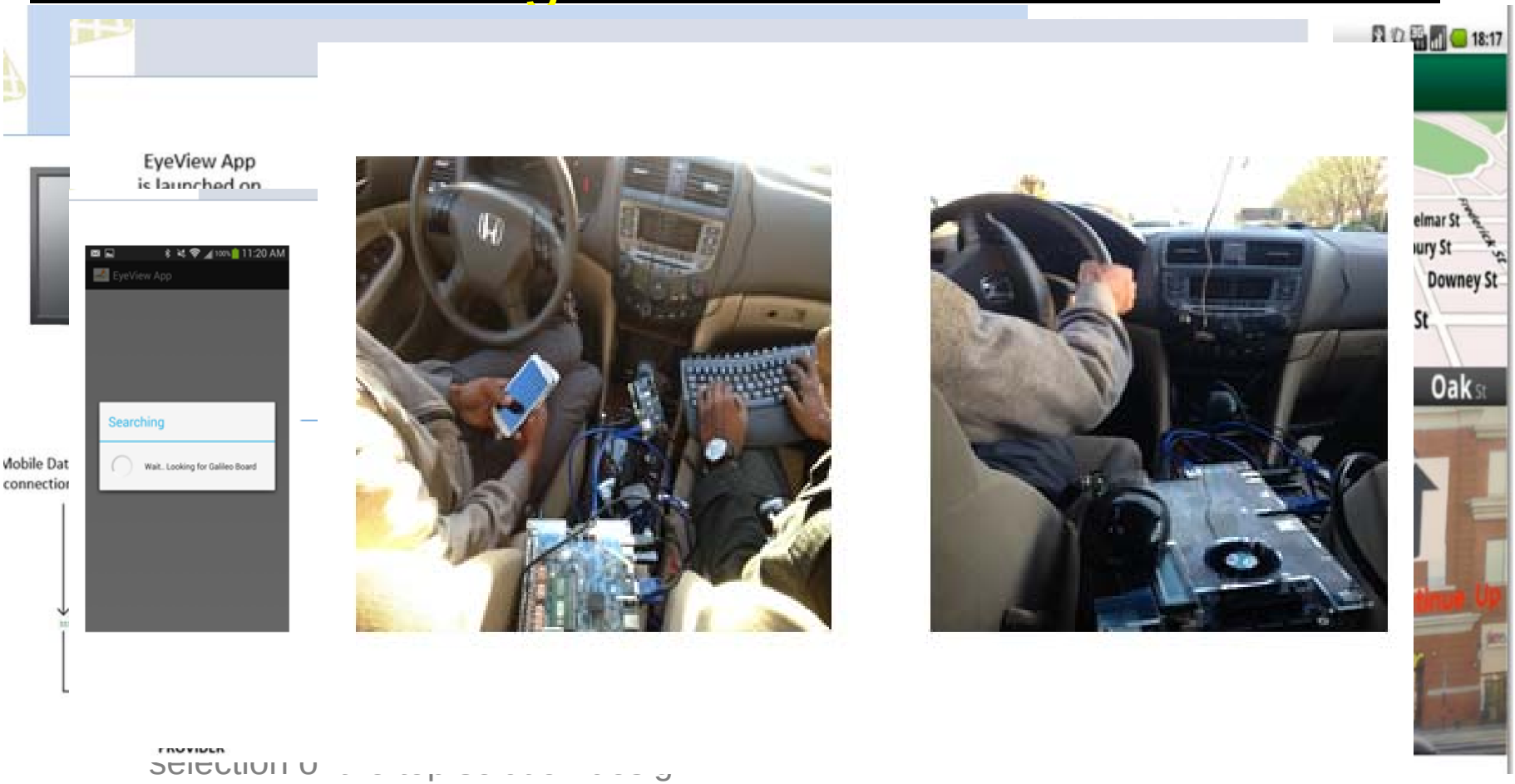

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Solution Design Presentation Format - 1

- **Cover**
  - Title
- **Backg**
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- **Conclusions (1 slides)**
  - Crisp and Clear Summary of all above

Conclusion

- A solution for a complete navigation system interface for live traffic feed, route directions and stop light recognition.
- Problem solving under multiple constraints and the requirements for compliance to standards and regulation.
- Awareness of intellectual property rights and laws and related patents for self-driving technologies.
- A great design experience that fostered multidisciplinary team work and extensive learning, and recognition of the important of life-long learning.
- Ready to implement the solution design

Solution Design Presentation Format (Summary)

- **Cover (1 slide)**
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  - Individual ideas
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- **Top Solution Design (2 – 3 slides)**
  - Schematics of the Solution Design
  - Detailed Description of the Design – Hardware and Software block diagram
  - Operation of the solution: how the final product would work
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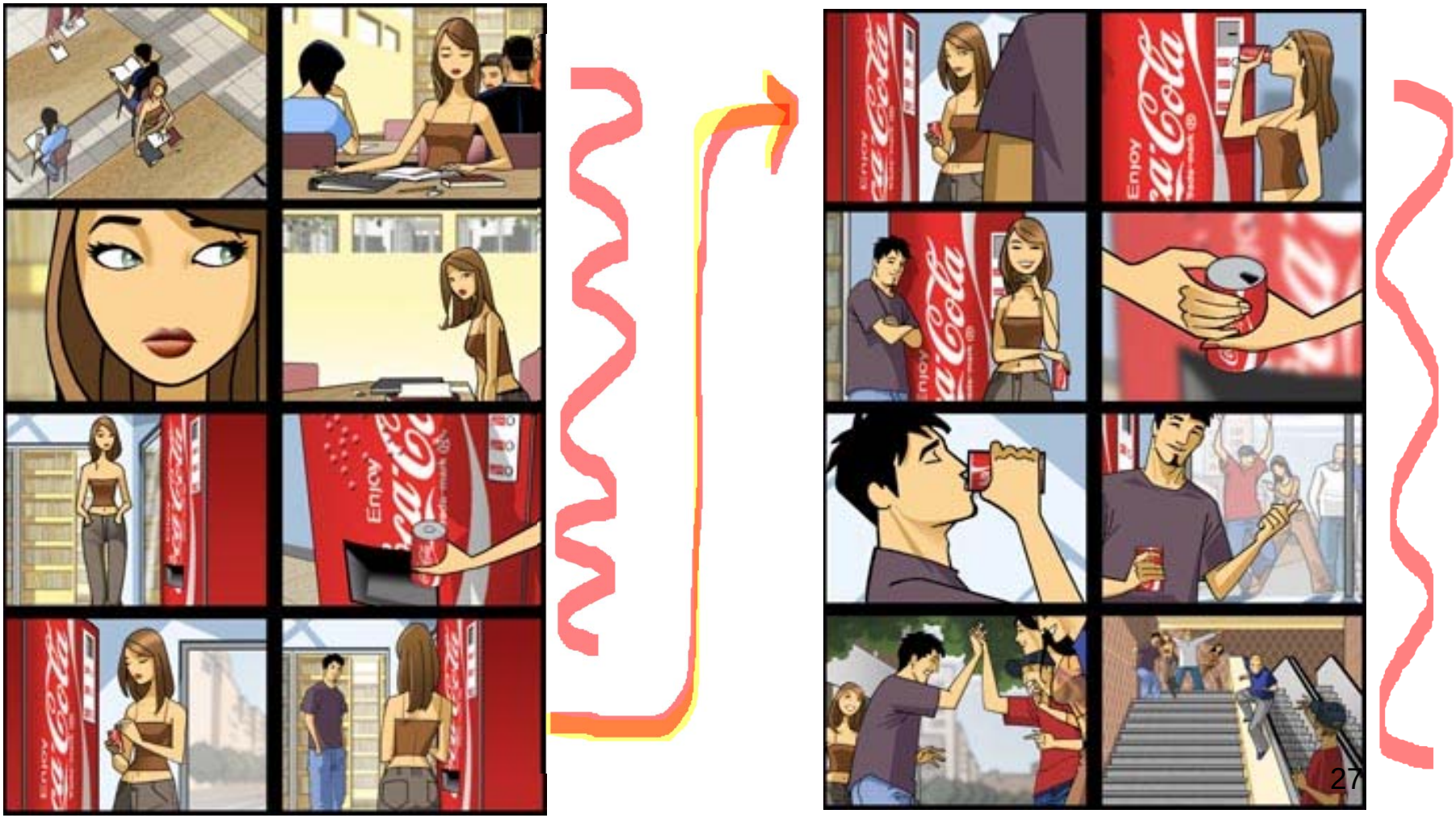
B. Presentation Visuals

- Slides for Presentation Assistance
  - One nice figure is better than a thousand words.
  - Discrete, not continuous: **Bullet Items (no complete sentences)**
  - Much more visually-oriented
  - Make a slide design simple and crisp
  - No uppercase all the time
  - Layout and Appearance are critical
  - Slide Storyboard

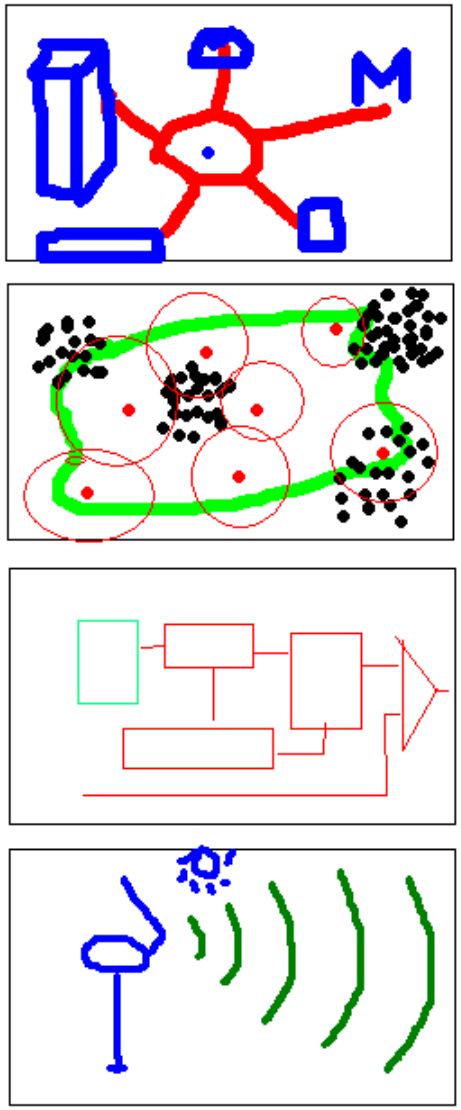
Storyboard

- **What is a storyboard?**
  - "a series of diagrams that are used to depict the composition of a video segment (oral presentation)"



Storyboard Steps for Presentation

- **Steps in storyboarding**
  - Develop a rough story line of presentation
  - Plan number figures to summarize the story ("project")
  - Printout each figure following the story line one a separate sheet of paper and assemble into a storyboard
  - See if you can make out the "Project story" from the figures.
  - Add, delete, and revise figures and bullet points to support the overall theme
  - THEN, add texts
  - Add more slides if necessary



Storyboard Practice – Team work

- Make Out 1 slide for each of the Presentation Content Categories
- Team work – submission required

- **Cover (1 slide)**
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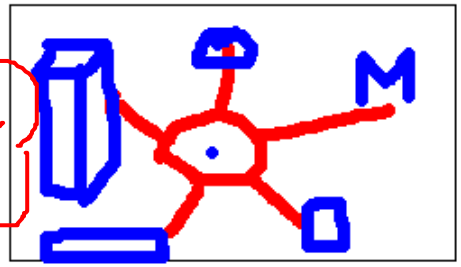
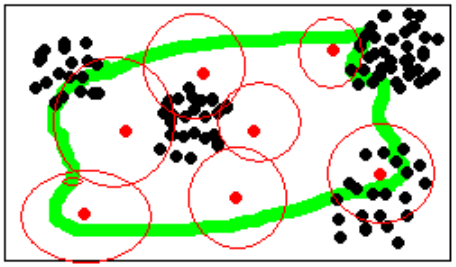
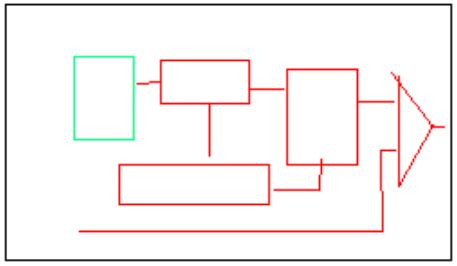
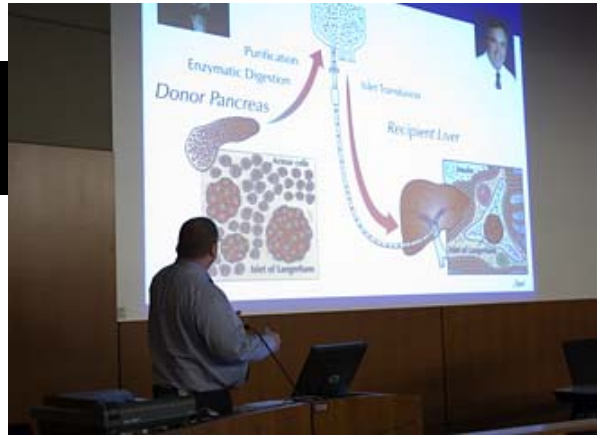






Tips for good Visuals



- Start from storyboard
- Determine the purpose of each slide
- Replace a text-dominated slide with a simple figure with legend
- Bulleted lists (with **big font size**)
  - Show contents without writing complete sentences
- Spell out acronyms and abbreviations
- Avoid unnecessary animation – use only that assists the clarity of presentation
- **NOTE –Visuals are an aid to the presentation. So you have to be able to talk and present even without the aid.**

Bad Slide Example

Background

- Who:

  The requirements for this project have been principally set by Northrop Grumman NGC.

- What:

  Design of the Grid-Eye Sensor System will detect both the position and the intensity of the heat radiated by the surface of either a single or multiple targets.

- Why:

  Northrop Grumman will thus have the choice to utilize the finished product for commercial and military purposes as they see fit in satisfying their needs.

Bad Slide Example

BACKGROUND

The foundation and idea of the project was conceptualized by the previous senior design group, who were not able to fulfill their list of robotic tasks due to time constraints. However, we have been tasked to further build on their work by not only fulfilling their list of requirements, but also adding our own robotic tasks as well. With that being said, the idea of an autonomous robot appealed to the group.

Bad Slide Example

Conclusion

Overall after assessing the situation, we have decided that creating this robot would be beneficial because its completion can assist its user in a great deal. It does not have a need that is substantially large however since convenience is an aspect that humans strive for on a daily basis this will prove to be a worthy device to purchase. From the design requirements that we mapped out, to the price that it is going to cost this device can be constructed and be fully functional by the project completion date.

Good Slide Example

Background

- 284M people visually impaired, 39M blind
- Limitations and challenges
  - Lack of surrounding awareness
  - Lack access to information
- Customers needs
  - Reliable navigation assistance
  - More accessible information
  - Other PDA like functions: calendar, planner, clock

MORE INDEPENDENCE, BETTER LIVING!

Good Slide Example

Background

How do people ensure they have all items needed for an event?

REMINDERS

CHECKLISTS

How is monitoring and identification done in our society today?

- RFID TECHNOLOGY

  An RFID system consists of

  Reader

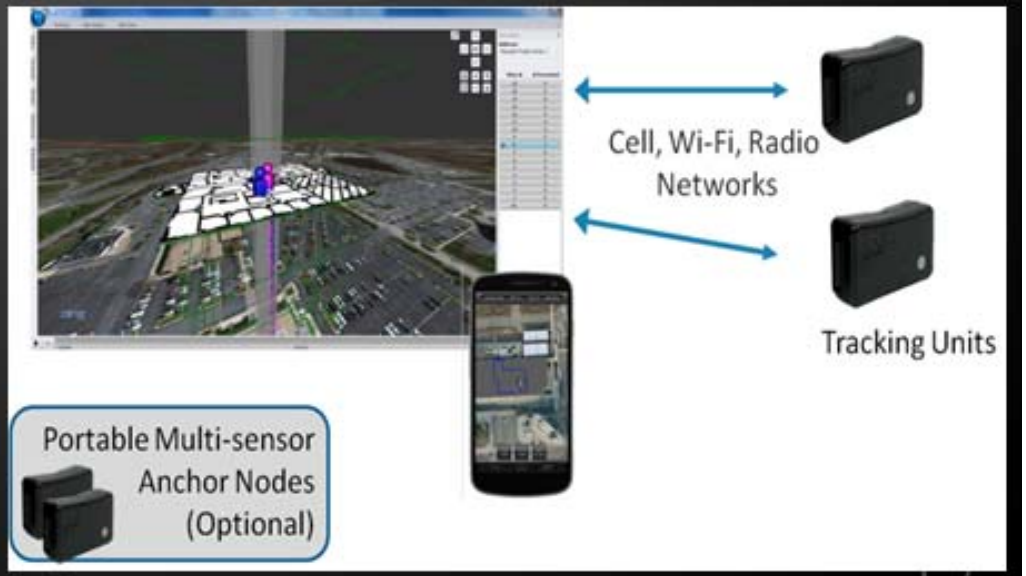
  Transponder or tag

11/14/2012

Good Slide Example

HOMING DEVICE: IPS

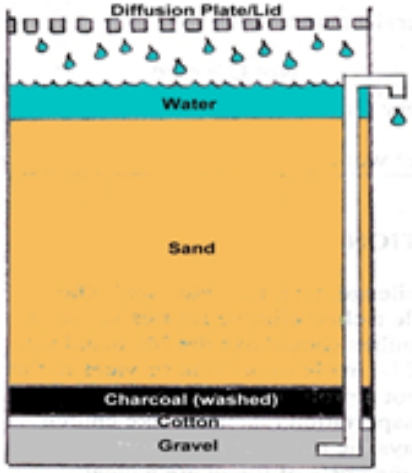
- Indoor Positioning System
- TRX Systems
- NEON Indoor Maps
  - Bluetooth (Radio)
  - Wi-Fi
  - Cellular



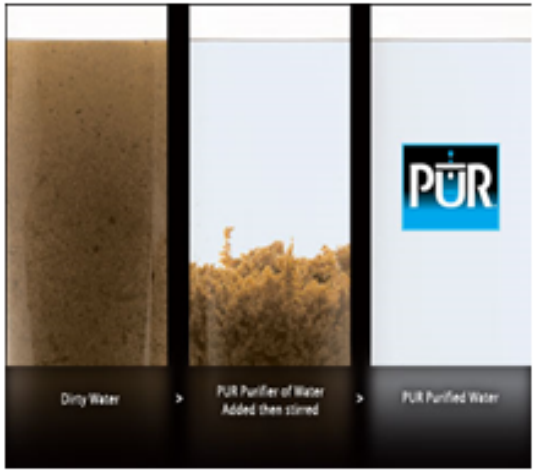
Good Slide Example

Current Status of Art

Solar Distillation



Biosand Filters



Chemical Tablets

Drawbacks:

Biosand Filters - Timely process, Limited to the amount of use per day
Solar Distillation -Water bottles have to be present
Chemical Disinfection- Supply of chemical tablets must be present

Methods do not use a technical approach

C. Presentation Delivery

- Remember “You are better presenter than you think”
- Present in a relaxed, yet professional way
- Convey precise technical information clear to audience
- Practice, Practice, and Practice

Delivery Tips - Voice

- Avoid reading slides word for word
- Project your voice and keep your head up and speak loudly
- Speak at relaxed pace
- Avoid repeat sayings: “basically”
- Use complete sentences when speaking and avoid pausing for too long
- Strong and impressive Conclusion

Delivery Tips – Posture and Body Language

- Maintain Eye Contact with audience
  - Pick 3- 4 people in different places, & rotate
- Avoid twitching, swaying, or snapping fingers
- Avoid your hands in pockets or crossing arms
- Dress appropriately – Dress Code
- Show enthusiasm – Body Language

Dress Code for Project Solution Design Presentation

- M Nov 19
- Business/Smart Casual

www.thedressreview.com

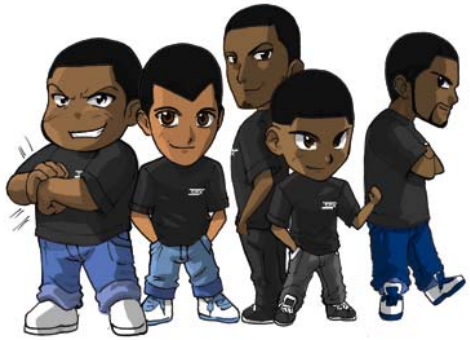
CASUAL DRESSES

TOP 3 SUGGESTIONS ABOUT WHAT BUSINESS CASUAL DRESS TO WEAR

Delivery Tips – Answering questions

- Cannot be fully planned ahead of time
- But try to anticipate questions
- Advice for handling questions effectively
  - Make sure you understand the question
  - Knowledgeable humility is the best ally
    - Avoid belittling question asker
    - Use questions as a means of clarification
    - Learn from the questions
    - If you don't know the answer, say so.
- Repeat the question, in a large room, so that everyone knows what it is

Team Presentation



- **Format**
  - Equally divided presentation times
  - Dialogue Style presentation
  - Tag team presentation
    - Anchormen and remote correspondents
- **Tips**
  - Plan ahead and do practice, a lot.
  - Everyone should share the presentation
  - Smooth Transition from a presenter to another
  - Decide Position and Roles in advance
  - Take pains to make sure that
    - everyone in the group is doing his/her share
    - Everyone performs well

Presentation Grading Criteria

A. Subject Matter (5 pts each)	1 Clear Description of the background of the project	
	2 Well defined problem (project goal) with quantified design requirements	
	3 Consideration of standards, rules, regulations, and constraints (economical, sociocultural, political, environmental, etc.)	
	4 Solution Generation and Top Desin Selection with Decision-Making Process	
	5 Technically Sound Top Design Solution	
B. Oral Presentation (5 pts each)	6 Hold audience attention through the presentation with direct eye contact	
	7 Demonstration of full knowledge with logical flow of subjects	
	8 Effective use of slides and visual aids	
	9 Smooth transition of team members speaking in different subjects.	
	10 Professional and knowledgeable Q&A	
Total	Overall Score (A) + (B)	

Timeline

Date	Activities
Week of Oct 8 - 12	Week 0: Individual Solution Generation and Ideation
Week of Oct 15 - 19	Week 1: Bring ALL individual ideas in to the team meeting
Week of Oct 22 – 26	Week 2: (1) Selection of 2 Top solution Designs (2) Analysis of Top 2 designs using decision matrix (3) Selection of the Top Solution Design
Week of Oct 29 – Nov 2	Week 3: Solution Design Description
M 11/5/2018	Week 4: **Submission** of the Solution Design Description (**Report**)
M 11/19/2018	**Presentation** of Solution Generation Process (including all the activities of week 0 – week 4)