Progress Report and Presentation

EECE404 Senior Design II
Department of Electrical and Computer Engineering
Howard University

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Progress Toward Final Product

- Or Transform from a Bison to a Salmon or a Chicken?

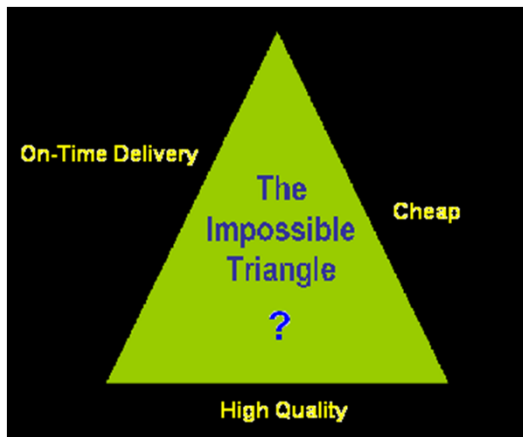

ECE Day Luncheon at the Blackburn Center   April 2012

Project Success

- ## Successful Project
  - #1 – On Time
  - – Within Budget, and
  - – To the Required Level of Quality (Satisfaction of Design Requirements)

Question: How do we optimally allocate resources [i.e., *person-hour*] to be on time and on quality ?

On-Time Delivery

The Impossible Triangle
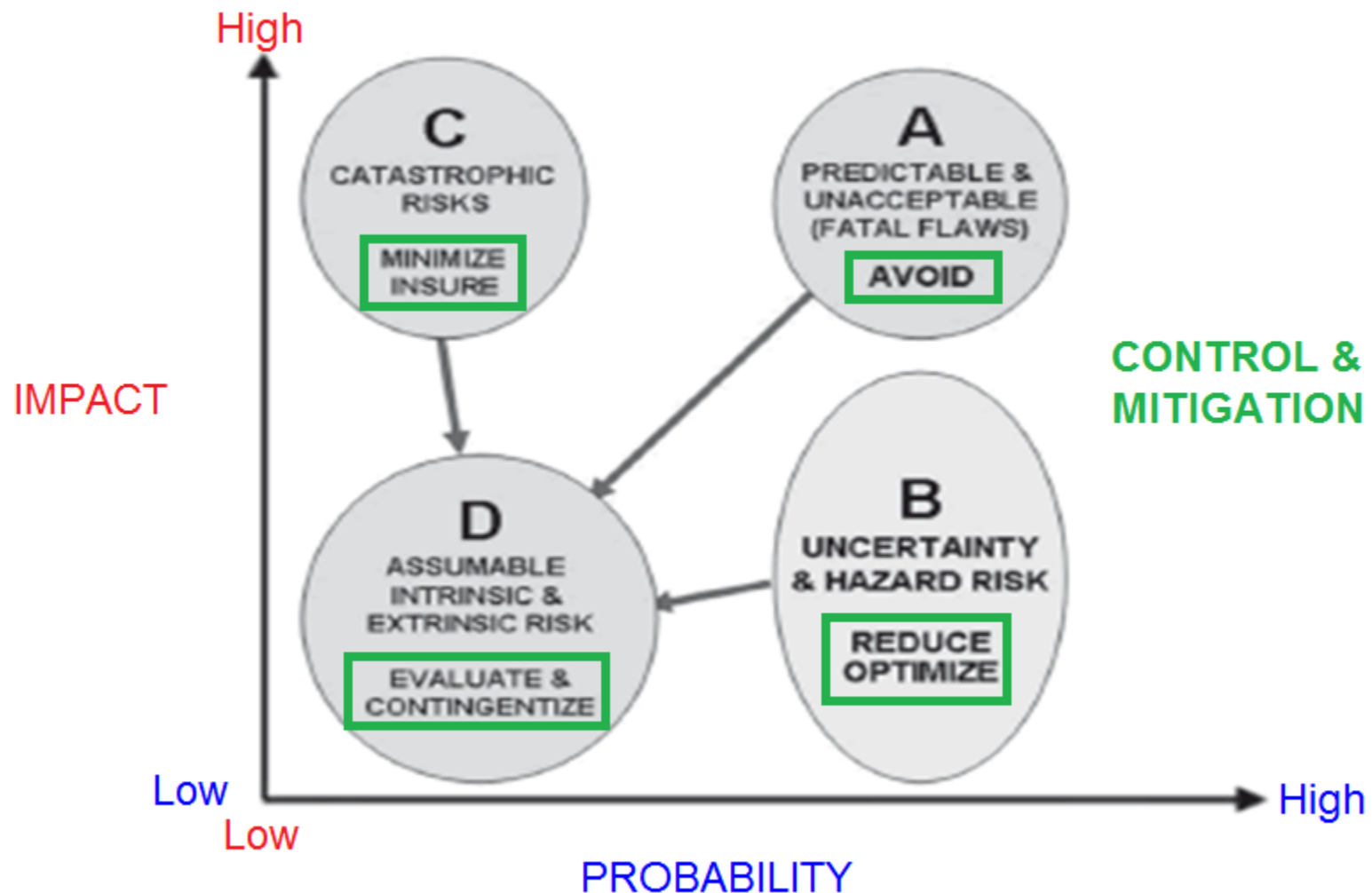
Cheap

?

High Quality

Project Tracking and Review

- Tracking
  - Where is the project going?
  - Where are we in the project schedule and timeline?
  - Where do we need to go/do next?
  - When can it be done?

- Review
  - Answers to the above questions
  - Appropriate measurement of project progress
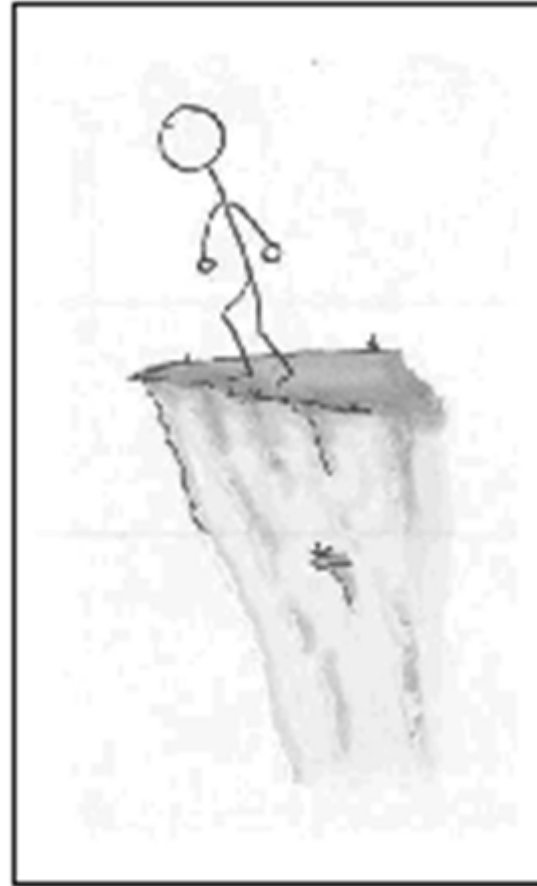 - Identification of project (or component) <u>failure risks</u>
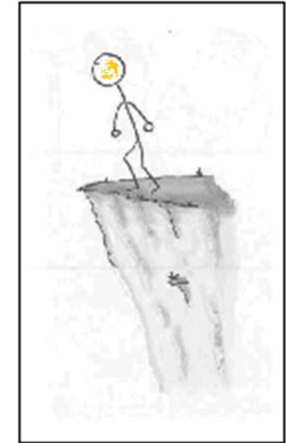
Risk Management

- ## What is Risk?

High

IMPACT

C
CATASTROPHIC
RISKS
MINIMIZE
INSURE

A
PREDICTABLE &
UNACCEPTABLE
(FATAL FLAWS)
AVOID

**CONTROL &
MITIGATION**

D
ASSUMABLE
INTRINSIC &
EXTRINSIC RISK
EVALUATE &
CONTINGENTIZE

B
UNCERTAINTY
& HAZARD RISK
REDUCE
OPTIMIZE

Low
Low
High

PROBABILITY

5

Risk Management
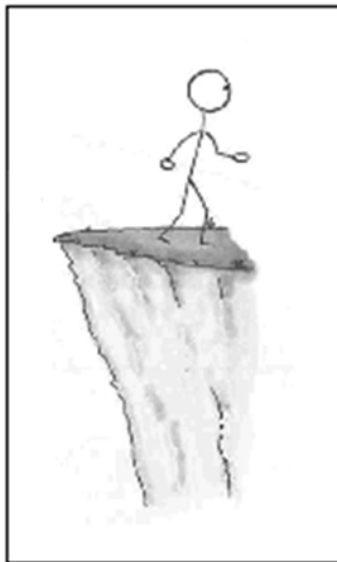
- Risk Identification
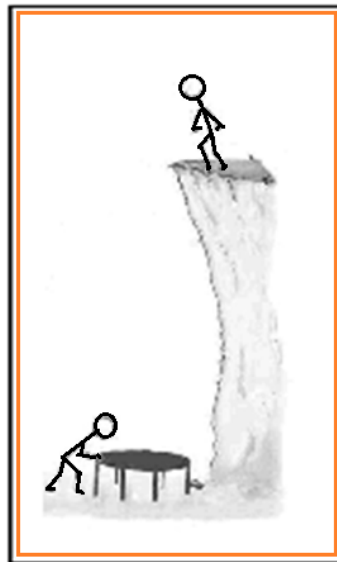- Risk Monitoring and Control

Your project

Risk Management

- Risk Identification
- Risk Monitoring and Control
  - Avoid? Then who'd do the job?
  - Transfer? To whom?
  - Accept?   With an unacceptable risk of being flunked?
  - Mitigate? We prepare and manage

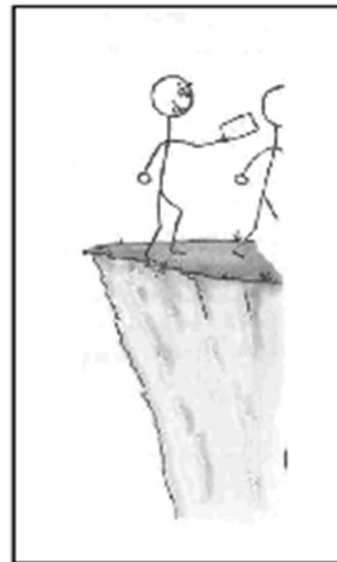Your project

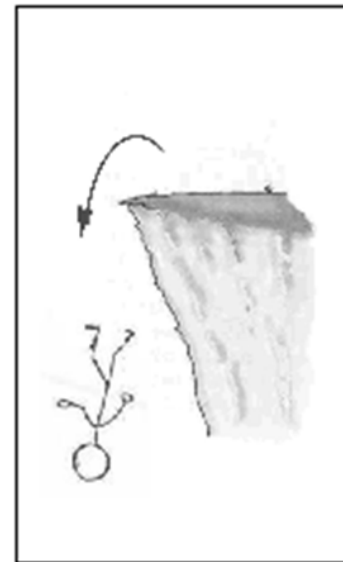
Avoid

Mitigate

Transfer

Accept

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Risk Management Example

Rank	Risk	Mitigation Approach
1	Motor Controller Failure	R
2	Motion detector malfunction Video feed incompatible	R
3	Beacon circuit issues	R
4	More testing may be required for Homing	R
5	FPGA software behind schedule	W
6	Cost growth for parts	A
7	Limited communication reception	W
8	Resources insufficient	A

Approach

W - Watch

Wake, Burning Oils, Study

R - Research

Search, Testing, Experimentation, Getting helps

A - Accept

mitigate

Risk Matrix

Likelihood (Probability) vs Consequences (Impact)
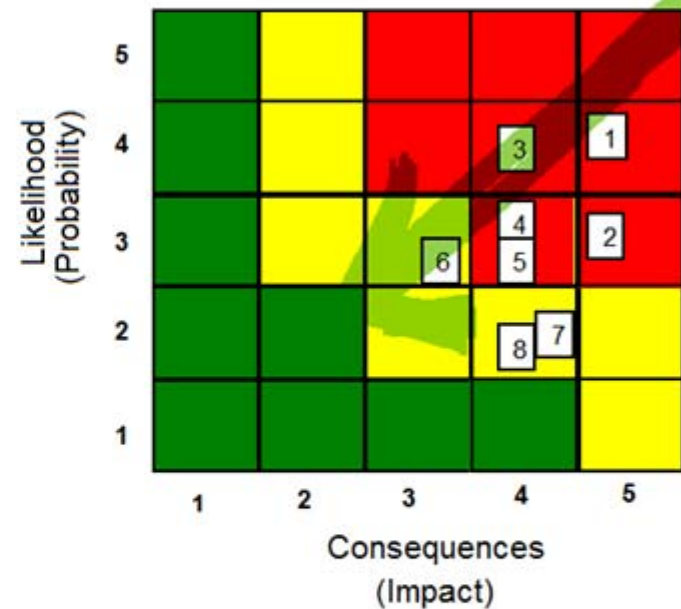
Criticality

High Med Low

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Progress Presentation

- **Purpose**
  - Track and Review Team's Works
  - Describes Progress (Milestone vs Outcome)
  - Present important highlights
  - Resolve issues
  - Risk Monitoring and Management
- **Frequency**
  - Every 2 weeks
- **Format**
  - **10 - minute** presentation (including Q&A)
  - **7 – 10 slides**
- **Submission**
  - Bring the presentation file (PPT or PPTX) to the class in a thumb drive on the presentation day
  - **Keep this at your project webpage**

Progress Presentation Contents

- **Slide 1: Cover Page**
  - Project Title / Member Names/Date

- **Slide 2: Final Design Solution Schematics (As a reminder)**
  - Final Design Schematics
  - Hardware & Software Diagram

- **Slide 3: Milestone Summary**
  - Implementation and Evaluation Plan vs. Achievement

- **Slide 4: Highlights of the Period**
  - What went well over the last period
  - Key findings and results (with diagrams)
  - Any Changes made from the previous period
  - Explanation of the demo/hardware (completed so far) details
  - Photos and/or video clips of the hardware in action

Progress Presentation Contents (-Continued)

- **Slide 5: Lowlights of the Period**
  - What did **not** go well during the period
  - Key problems faced (with drawing, photo, video, etc)

- **Slide 6: Risk Mitigation Measures**
  - Issues responsible to the lowlights
  - Identified Risks
  - Barriers to be removed
  - Risk mitigation measures and activities ---tabular format

- **Slide 7: Focus of Next Period Activities**
  - How lowlights and issues are to be resolved
  - Changes to be made in the approach
  - The next major milestone to achieve

Grading for Progress Presentation

- **Team score**
  - Task (50%)
    - Presentation contents (the <u>amount of progress</u>)
    - Subject Understanding
  - Oral Presentation (50%)
    - Effective Use of Slides
      - Color contrast
      - Font Size, Etc
    - Professional communication skill
      - Eye Contact
      - Clear Voice
      - Body Language
      - Team presentation

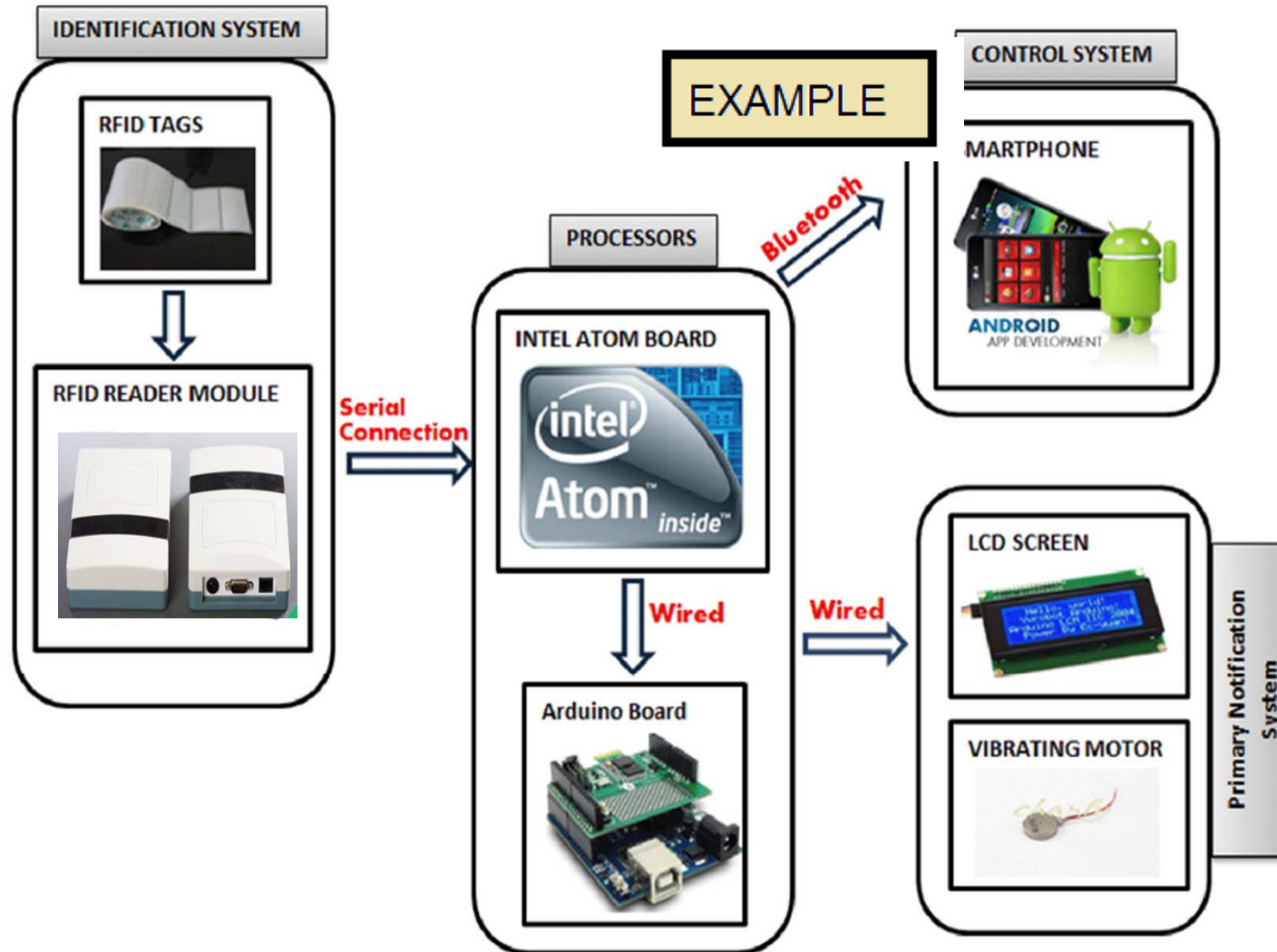# Example Progress Report/Presentation

EXAMPLE

Team "SMART BACKPACK"

EXAMPLE

Progress Report/Presentation

EECE404 Senior Design II
Electrical and Computer Engineering
Howard University

2. Final Solution Schematic Diagram

3. Milestones Vs. Outcomes - Summary

No	Date	Milestone		Outcome
1	Jan 20	Receive RFID reader	EXAMPLE	DONE
2	Jan 27	Receive Intel funds		DONE
3	Feb 5	Create inventory menu for application		DONE
4	Feb 12	Implement file read and write for application		DONE
5	Mar 5	Set-up Bluetooth file transfer		In Progress
6	Mar 15	Determine current draw from RFID reader and DE2i-150 board		In Progress
7	Mar 21	Program LCD functionality		In Progress
8	Mar 28	Program RFID reader		In Progress

4. Highlights of the period

EXAMPLE

- Finally received Cornell Cup funds from Howard

- Diagnosed the problem causing Intel Board not to boot previously

- We received & set up the RFID reader (ZK-RFID-107) and antenna
  – The antenna increases the reader range to about 2-3 meters

- Made some progress with the Android app
  (see pictures on next slide)
  – Improved calendar UI
  – Activated Bluetooth file transfer
  – Created pop-up menu
  – Implemented file read and write

- Implemented text output to LCD screen
- Schematics and Screen Shots flow

4a. Android App

EXAMPLE

addnewevent

Event Name

Starting Time

10	29	AM
11	: 30	PM
12	31	

| M | Tu | W | Th | F | Sa | Su |

Confirm Event

Calendar

11:36

February 2013

	S	M	T	W	T	F	S
5	27	28	29	30	31	1	2
6	3	4	5	6	7	8	9
7	10	11	12	13	14	15	16
8	17	18	19	20	21	22	23
9							2
10	3	4	5	6	7	8	9

Nothing Scheduled for 1/20/2013

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4b. Bluetooth

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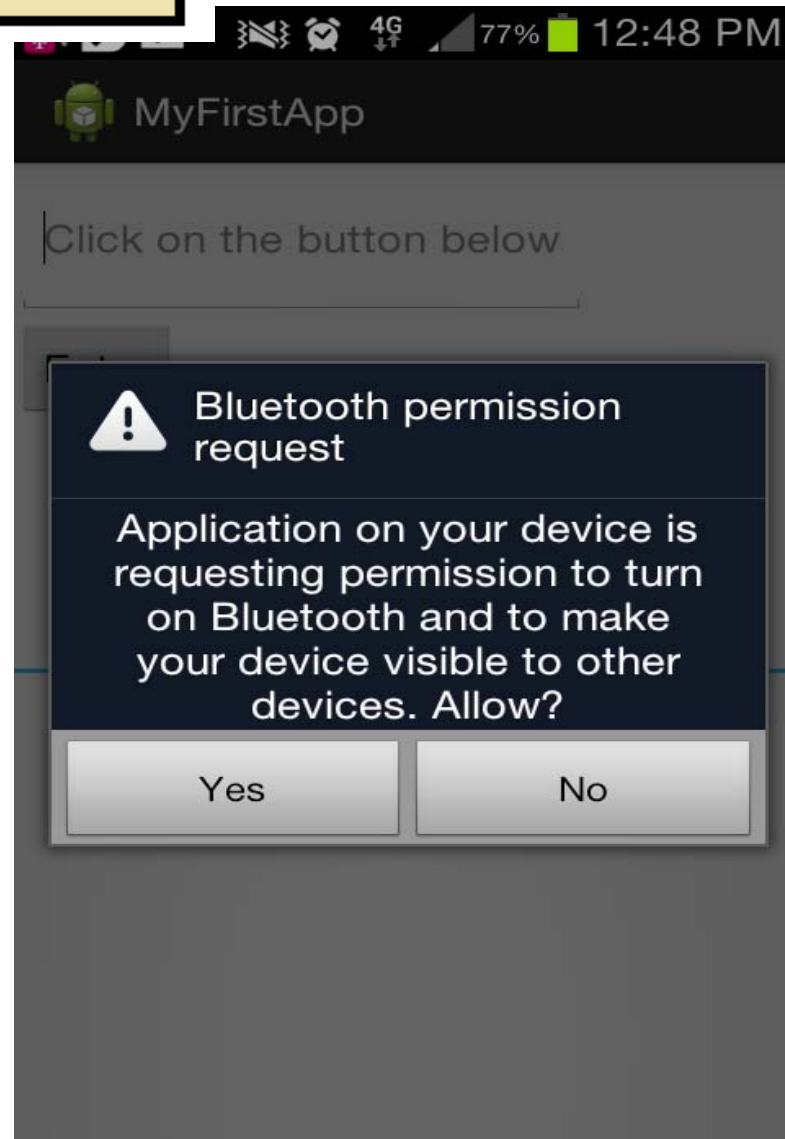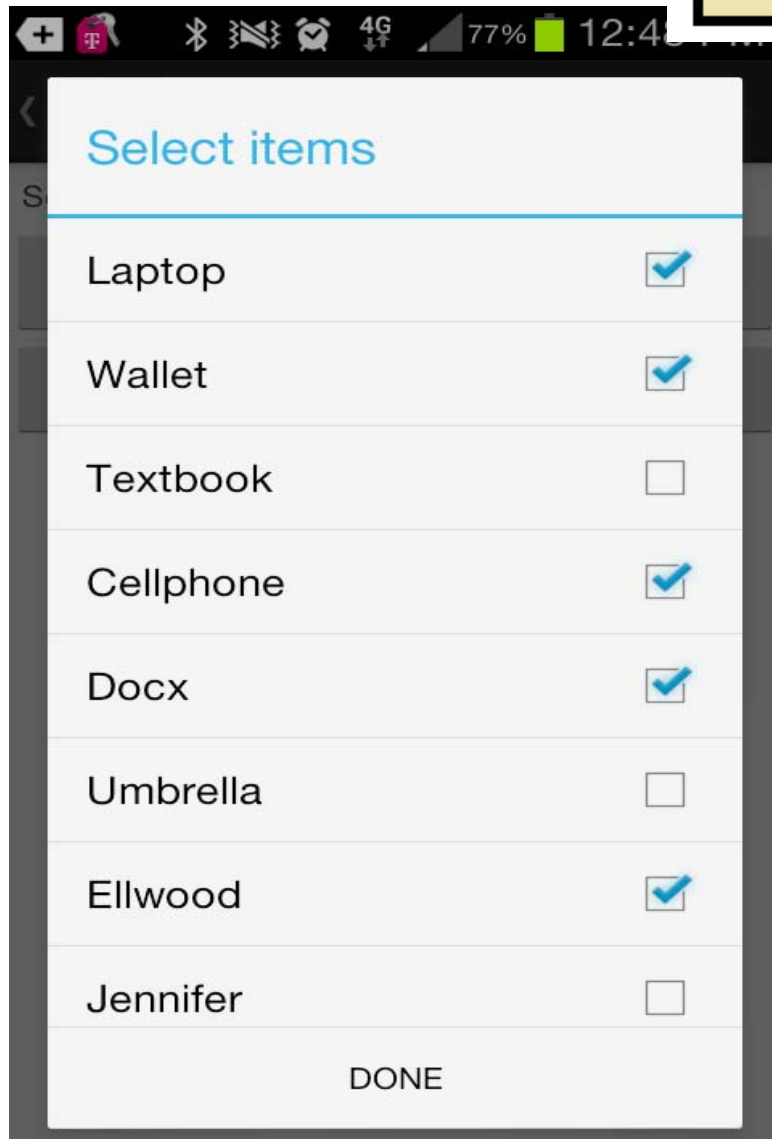
4c. Demonstration: Quartus II System Builder with System on Chip(SOPC) Application

4d. Demonstration: Quartus Programmer - Importing FPGA designations for usage in Nios II C++ environment
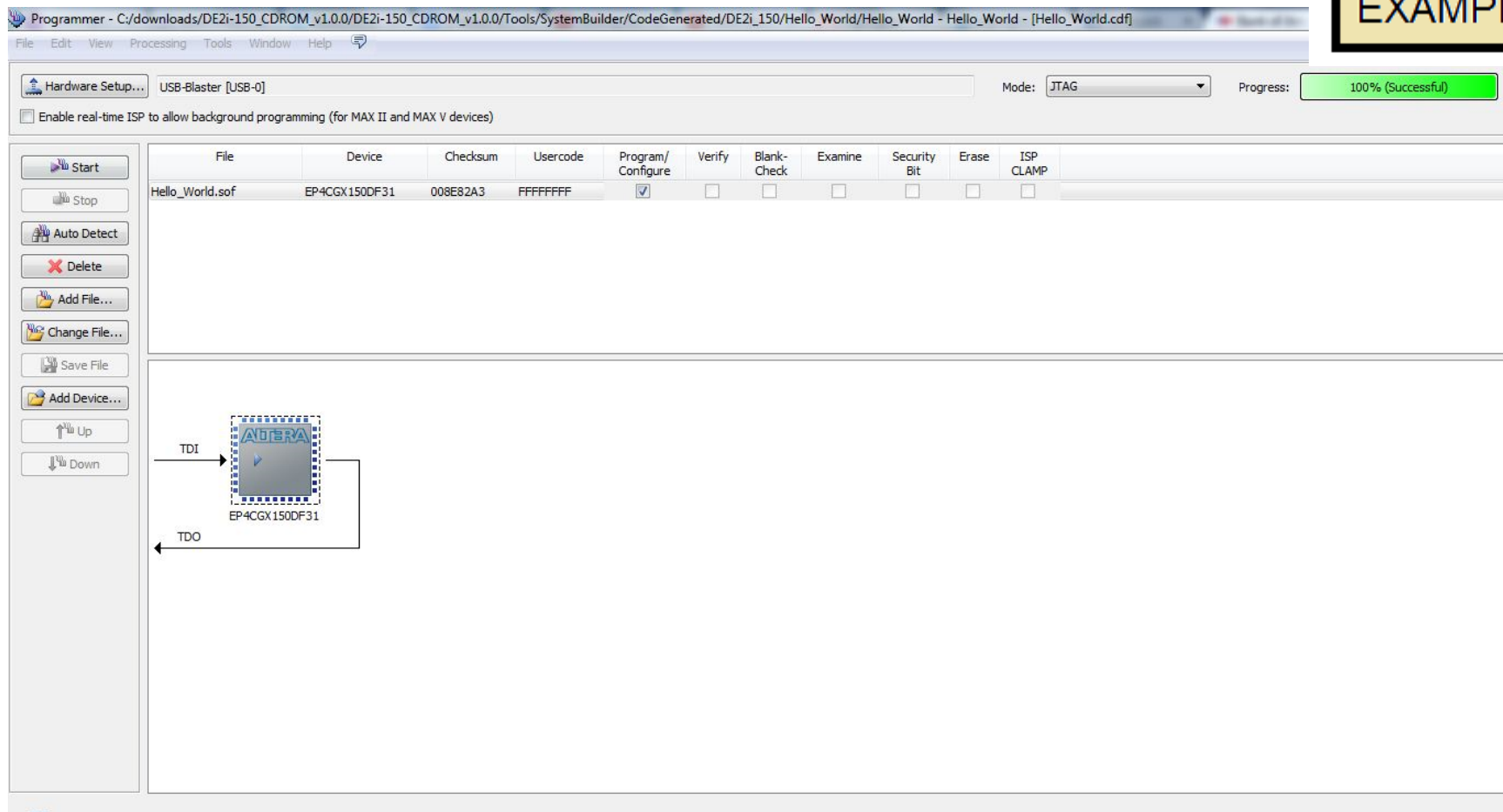
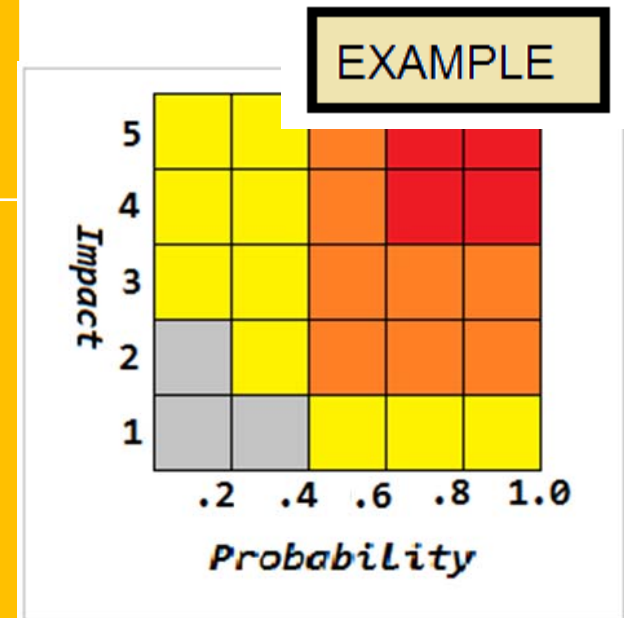# 4e. Demonstration: Printing Text to LCD screen

EXAMPLE

5. Lowlights of Period

EXAMPLE

- Challenges in rectifying Calendar App Code obtained from open source still persist
  - We have to consider the necessity of creating (importing) the entire android platform as well to be abe to take full advantage of said app code

- Discovery that the team is going to need substantial knowledge of Verilog or VHDL for the FPGA programming
  - Team members' expertise is more focused on other languages

- Realization that the presence of certain materials such as metal on laptops may significantly impact the frequency range of our RFID reader
  - The team may have to set this property to a dynamic range on the reader

6. Risk Mitigation Measures

Risk	Probability	Impact	Risk Control and Management
Intel Board fails to turn on	.2	5	• Study the capabilities of the Intel Board such as the boot manager
RFID reader fails to scan tags within desired region	.4	5	• Test the reader in various situations(stationary, mobile, different environments) • Test the reader when its trying to scan different items
Information not successfully transmitted from RFID to board	.2	5	• Test the board in various situations(stationary, mobile)
Battery life does not allow system to operate throughout a normal day	.2	3	• Recharge battery daily • Use battery with sufficient mAh

EXAMPLE

7. Focus of Next Period Activities

How the Low Points are to be Resolved	New Approach	Next Major Milestone
• Explore the codes controlling the RFID reader to read multiply tags	• Divide the system into individual components and explore each workings/functions	**RFID** • Customize software code for the RFID reader • Ensure RFID is reading multiple tags within proximity • Import tags read to a list /file that can be manipulated by Intel Board and smart phone application • Integrate RFID reader with the Intel board
• Study more about android platform/ development	• Build on android 4.2 stocked calendar application • Tie the created inventory to the existing calendar application	**INTEL BOARD** • Continue learning the design suite • Continue figuring out the workings of the LCD and accelerometer • Sync controls between RFID reader, LCD and accelerometer • Establish Bluetooth connectivity feature for the board
• Use weekly meetings more effectively to achieve measurable progress	• Use C# to program the RFID reader	**SOFTWARE** • Continue calendar and inventory app development • Establish Bluetooth reception on board
		OTHERS • Order all other hardware components

Jan- Feb Schedule

- **Jan- Feb Schedule**
  - W JAN 28: Lecture on Elevator Pitch
  - W FEB 4: First progress presentation
  - R FEB 5: Project Webpage due
  - W FEB 11: 1st Elevator Pitch (1 per team)
    - **Subject or situation "what is your project about?"**
  - W FEB 18: 2nd Progress Presentation
  - W FEB 25: 2nd Elevator Pitch (1 per team)
    - Subject: TBD