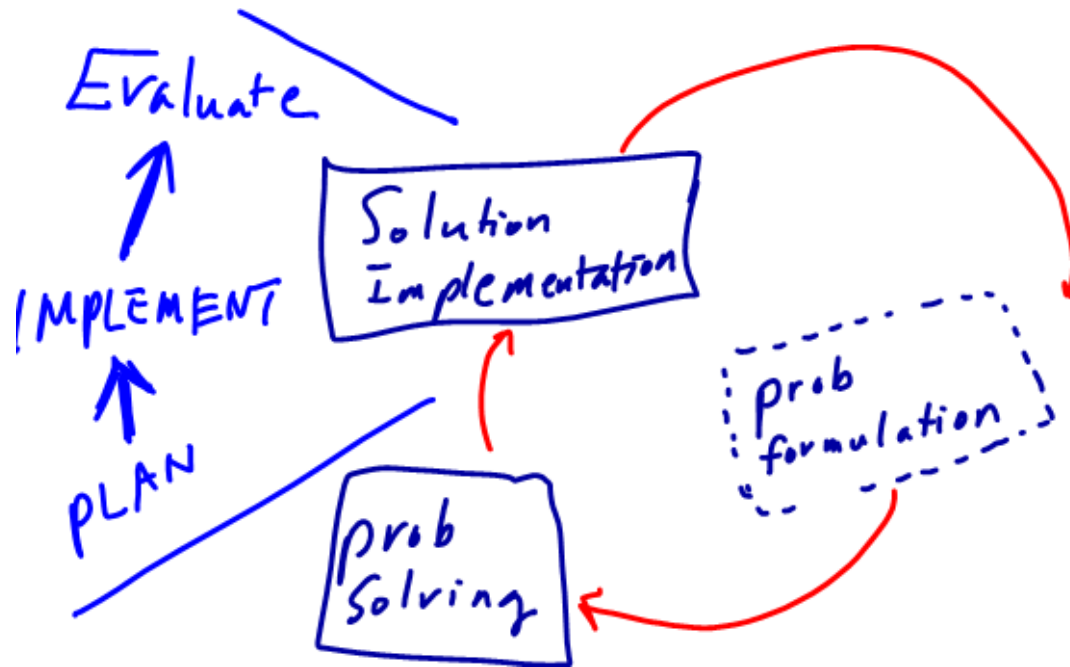


# Implementation and Evaluation Planning



Paper Design **Into** Reality

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# Today's Objectives

- Steps of Solution Implementation
- Consideration for Implementation Planning
- Elements of Good Test Plan
- Strategy for Evaluation
- 3 C's
  - Commitment
  - Communication
  - Coordination
- QCD: Key performance indicator
  - We go by
  - **DQC (Delivery – Quality – Cost)**

# PLAN

- **What's Involved**
  - **Conversion of Paper Design into Reality**
  - **Make sure the implemented design meets the design requirements (“Quality”)**
  - **Efficient Process to do the work (“Delivery”)**
- **PLAN**
  - **“A road map to a goal”**
    - **Outline the navigation route**
    - **Coordinate efforts**
  - **Manage the key resources**
    - **Time**
    - **Personnel**

# Components of Implementation Plan

- **TIME**
  - Details of Tasks to be executed
  - The Order the Tasks to be done
- **PERSONNEL**
  - Who will work on which tasks
- **Mutual Understanding of the PLAN**
- **Focus**
  - Produce (implement and **deliver**) high **quality** product **economically**, **environment-friendly**, etc

# Implementation Planning

- **DETAIL**
  - You can and should be very detailed with your plan
  - Instead of “construction”
    - Breakdown to much smaller tasks;
    - “order motor”, “manufacture brackets”, “align optical components”
  - Instead of “Coding”
    - Breakdown to much smaller modules;
    - “video module A”, “homing subroutines”, “collision avoidance”,
  - Timeline
    - Gant Chart
    - Spreadsheet
    - Project Calendar

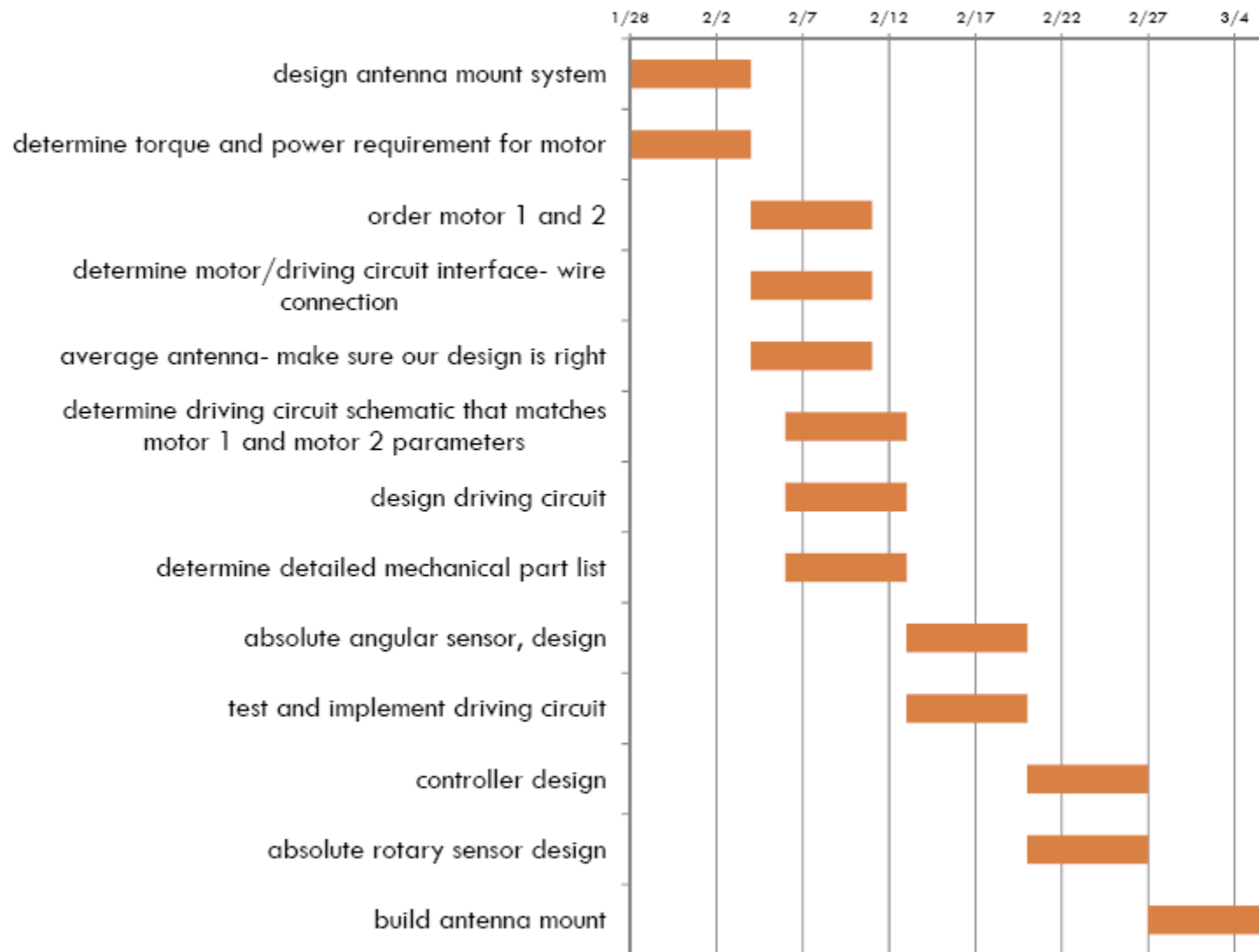
# Implementation Planning -continued

- “x3”
  - Everything takes longer than you think – even if you think it will take longer than you think.
    - Parts will not arrive when promised by suppliers
    - Building parts yourself will take longer than expected
    - Software coding takes much longer than you think
  - Rule of Thumb
    - (estimated time) x 3
    - Time estimation is learned only through experience
- Evaluation (Test) Procedures to evaluate a design against all of the design requirements
  - Test Plan
  - What to test
  - How to test

# Example - 1

Week	Beginning Date	Deliverables
Week 1	08-Feb-09	<ol style="list-style-type: none"><li>1) Order the following parts<ul style="list-style-type: none"><li>- Line Tracker Input Sensors</li><li>- Miniature car</li><li>- Basys System Board FPGA</li><li>- Ultra-Bright LEDs</li><li>- Connecting wires</li><li>- Seat vibrators</li><li>- Electric switch (for turn signal)</li></ul></li><li>2) Use relevant block set to create simulation with Simulink®</li></ol>
Week 2	15-Feb-09	<ol style="list-style-type: none"><li>1) Develop LDWS system algorithm</li><li>2) Consult with faculty advisor (Dr. Gloster) to critique the algorithm</li></ol>
Week 3	22-Feb-09	<ol style="list-style-type: none"><li>1) Use VHDL to develop the input module (interpret data from line tracker module)</li><li>2) Use VHDL to develop the control unit module (process data received from line trackers module)</li></ol>
Week 4	01-Mar-09	<ol style="list-style-type: none"><li>1) Construct demonstration set</li><li>2) Critique and test VHDL software</li></ol>
Week 5	08-Mar-09	<ol style="list-style-type: none"><li>1) Test model on demonstration set</li><li>2) Update VHDL code in input module if needed</li></ol>
Week 6	15-Mar-09	<ol style="list-style-type: none"><li>1) Develop user tests: Power User Test and Normal User Test</li><li>2) Develop and critique plan for user documentation</li></ol>
Week 7	22-Mar-09	<ol style="list-style-type: none"><li>1) Create user documentation based on previous plan</li></ol>
Week 8	29-Mar-09	<ol style="list-style-type: none"><li>1) Beta testing with select power users</li><li>2) Update user documentation accordingly</li></ol>
Week 9	05-Apr-09	<ol style="list-style-type: none"><li>1) Beta testing with normal users to ensure that user documentation is comprehensive and easy to follow</li></ol>

# Sample -2





# Sample -3

Cap II		Implementation & Evaluation Plan (FINAL)	r2.15.12
WEEK	TASKS	MEMBER	
Feb. 6 - 11	Finalization of parts to be ordered	Brima	
	Order parts (send list to Dr. Harris)	Bathiya	
	Study how to interface microprocessor + sensors	Kurubel	
	Study software development guide for Etool (CC2540 programming IDE)	Bathiya	
	Finalization of camera sensor to use	Lauren + Kurubel	
	Calculate power requirements & identify battery required battery	Lauren	
	Sign up for Apple Developer Program and obtain Xcode IDE	Brima	
Feb. 12 - 18	Obtain an iPhone 4S	Brima	
	Follow up with Dr.Harris on status of order	Bathiya	
	Create schematic on P2PICE	Bathiya + Kurubel	
	Create PCB layout on Pad2Pad software	Bathiya + Lauren	
	Research antenna connection	Lauren	
	Investigate availability of IAR Embedded Workbench License	Lauren	
Feb. 19 - 26	Program mini-dev kit to get built-in temperature readings	Kurubel	
	Program dev. kit receiver to sync with the device	Lauren	
	Complete PCB layout and send schematic to Pad2Pad	Bathiya + Lauren	
	Study reference iPhone app code	Brima + Kurubel	
Feb. 28 - Mar. 3	Program mini-dev kit to read values from accelerometer - Set the sensor to provide continuous stream of data	Lauren + Bathiya	
	Deploy reference iPhone code and test the connectivity	Brima	
	Analyse accuracy and precision of these temperature readings	Brima	
Mar. 4 - 10	Prepare test environment - Find warm and cold setting - Prepare easy method of modifying ambient temperature quickly	Lauren	
	Program mini-dev kit to read values from built-in temperature sensor - Start with one reading of temperature, then program to provide continuous readings	Lauren + Bathiya	
	iPhone App Development - Identify main features needed to implemented in iPhone - Design and sketch user Interface (block diagrams) to outline the app - Address data storage format	Brima + Kurubel	

# Sample – 3 (continued)

Mar. 11 - 17	Program the microprocessor - First, deploy previous code to read built-in temperature sensor values - Then adapt accelerometer reading code for the external temperature sensor	Lauren + Bathiya
	iPhone App Development - Start programming a shell of the program with required user interface - Using reference code, incorporate required Bluetooth communication code	Kurubel + Brima
Mar. 18 - 24	Program the microprocessor - Continue to develop code to read values from external temperature sensor - Debugging - Test communications link between capsule and BLE receiver on PC	Lauren + Bathiya
	iPhone App Development - Continue programming/incorporating Bluetooth code	Kurubel + Brima
Mar. 26 - 31	Finalize microprocessor programming, debug	Lauren + Bathiya
	Finalize iPhone coding, debug	Kurubel + Brima
	Test connectivity between capsule and iPhone	Bathiya + Kurubel
Apr. 1 - 7	Use test environment to evaluate performance of data collection	Lauren
Apr. 8 - 14	Prepare for EGE Day	All

# Implementation and Evaluation Plan - Summary

- Summary
  - Detailed Road Map from Final Design to Reality
  - Detailed Plan to achieve quality project and to deliver on time.
  - Starting from this week
- Today's Task
  - We will do this as a class activity today
  - Much more detailed plan than the samples
    - **Implementation and evaluation (tests) tasks – Detail (divide into small tasks)**
    - **Weekly Tasks**
    - **Daily Activities**
    - **Weekly Deliverables**
    - **Members in charge**
  - Use fillable project calendar

# Project Calendar Form for Project Implementation and Evaluation

PROJECT IMPLEMENTATION AND EVALUATION PLAN  
Senior Design Class

Dr. Charles Kim

TEAM NAME: \_\_\_\_\_

TEAM MEMBERS: \_\_\_\_\_  
\_\_\_\_\_

WEEK	DAILY TASKS		MEMBER In CHARGE	DELIVERABLES
	DATE	TASKS		
FEB 2 - 8				
FEB 9 - 15				
FEB 16 - 22				
FEB 23 - 28				
MAR 1 - 8				

## Class Activity

- **Project Implementation & Evaluation Plan**
  - Work on the form
  - Use the final design document
  - Use the proposal's timeline
  - Fill out the form
  - Print out
  - Submit
- **Class Schedule for February:**
  - **Feb 12:** Lecture on Progress Reporting & Presentation
  - **Feb 19:** Make-Progress Week” – Team meetings and Team-Instructor meeting
  - **Feb 26:** First Progress Presentation