

**EE/CpE 423**

**Senior Design**

**Fall 2004**

**Class 2 – 9/7/04**

# Agenda

- Introduction of Jason Berenbach (jberenba@stevens.,edu) – Senior Design TA
- Announcement, issues
- Directions and more logistics.

# Problem Definition

- I want to build a widget
- Exploration of gizmos
- Programming a thingamabob

These are not problems,  
They are solutions

# Problem Definition

- I want to build a widget
- Exploration of gizmos
- Programming a thingamabob

These are not problems,  
They are solutions

- Gizmos are too hard to use while riding a unicycle
- Widgets are too expensive for everyday users
- Thingamabob's use too much power to last a day
- Doohickeys are too large to carry in your pocket

These are problems,  
The solution will follow

# I asked for 120 Problem Definitions by 9/3

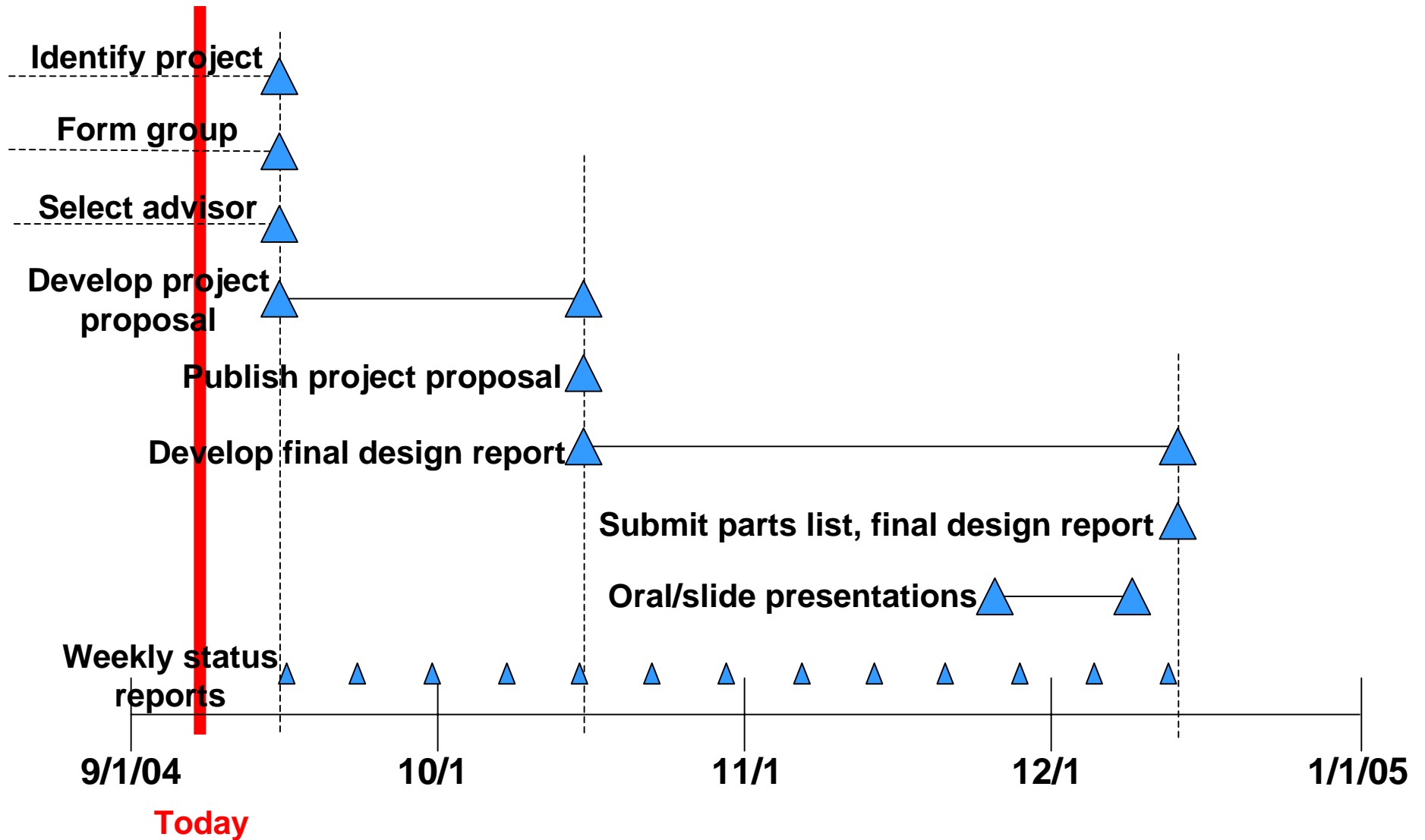
- By 9/5, I had
  - 16 problem definitions
  - Including 13 other students
  - 5 more solutions
  - Including 6 other students
- Total represents ~40 students
- ~80 were not responsive and not included in others' proposals.

# Sunday Version of Problem Definitions

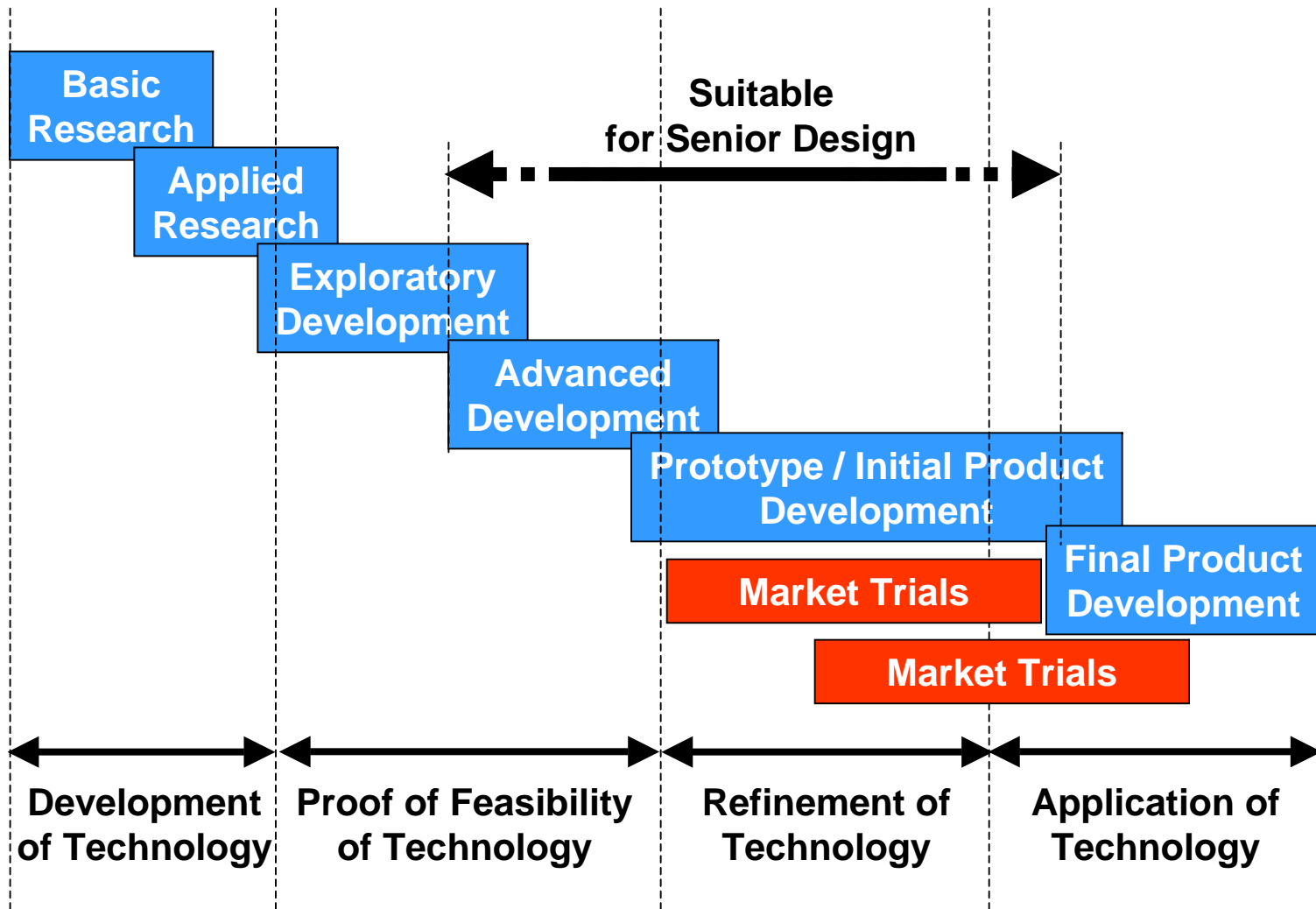
- [http://www.ece.stevens-tech.edu/~bmcnair/senior\\_design-04-05/problems.html](http://www.ece.stevens-tech.edu/~bmcnair/senior_design-04-05/problems.html)



# Senior Design Tasks – Fall '04



# Stages in Development Cycle



# Constraints That Can (Should?) Be Relaxed For Prototype

- **Physical size**
    - Level of integration (VLSI vs. FPGA,  $\mu$ C, LSI/MSI, etc.)
  - **Implementation platform**
    - simulating a Palm on a laptop,
    - simulating functions in software that would normally be in hardware, and vice versa
  - **Feature set**
    - What is essential to demonstrate concept, vs. what could be imagined/assumed
    - What is known to be doable vs. what is to be demonstrated
  - **Performance**
    - Speed, capacity, etc.
  - **Environmental constraints**
    - Operating temperature range, shock, vibration, etc.
- Focus on *key* attributes of end design, not every detail

# Upcoming Discussion/Seminar Topics

- Patents, Trade-secrets, Intellectual Property and Technical Business Ethics
- GPS and Geolocation Services
- RS-232 Interfacing with Uncooperative, Non-Standard Devices
- Embedded systems
- I'll add other topics as they occur to me or students propose them

# Other Resources

- Circuit Cellar Magazine