# EECS Day Preparation + Final Report

**EECE404 Senior Design II**
Electrical Engineering and
Computer Science
**Howard University**

Instructor: Dr. Charles Kim

# EECS Day ( Fri. April 18, 2025)

# Preparation

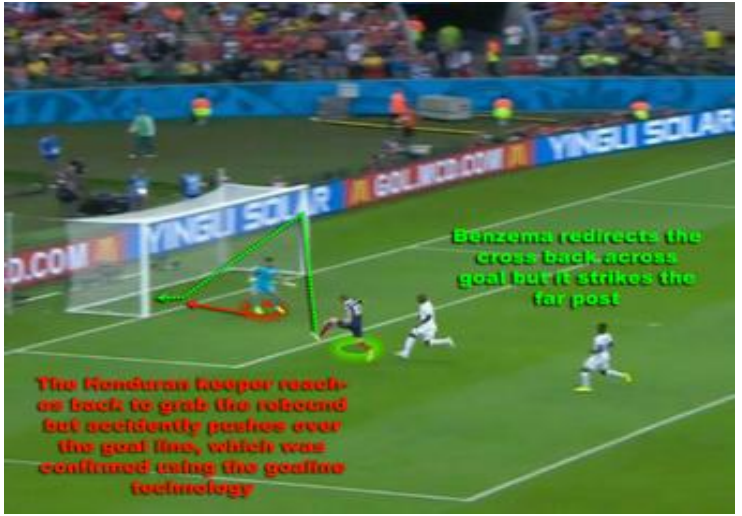
**The journey is almost over, and you'll jump soon**

# EE Day → ECE Day → EECS Day (from 2017) → EECS Annual Capstone Design Day (from 2024)

- **1st EECS Day - 2017**
- **2nd EECS Day – 2018**
- **3rd EECS Day – 2019**
- *** 2020 – 2021 cancelled due to Corona Virus**
- **4th EECS Day – 2022**
- **5th EECS Day – 2023**
- **6th EECS Day – 2024**
- **7th Annual Capstone Design Day - 2025**

# Toward the Goal Line

| Date | Activities |
|---|---|
| T 4/1/2025 | • Lecture on “EECS Day Preparation – EECS Day Presentation Slide Format”, and Demo set-up |
| **T 4/8/2025** | • **Sprint 3 presentation – Part 1** – “Dress Rehearsal” with **EECS Day Presentation Format** |
| **T 4/15/2025** | • **Sprint 3 presentation – Part 2** – “Dress Rehearsal” with **EECS Day Presentation Format** |
| **F 4/18/2025** | • The 7th EECS Annual Capstone Design Day: 8:00am – 2:00pm (LKD Reading Room) **Lunch** (Mackey Innovation Space) |
| T 4/22/2025 | • Lecture on **Peer-Evaluation**<br>• EXIT Survey |
| W 4/23/2025 | • **Final Report Submission due** |



# EECS Day Event Format (F) 4/18/2025)

***7th EECS Annual Capstone Design Day Schedule (2025)***

*LKD Reading Room (2019) & Innovation Center*

8:30 – 9:00am: Registration and Breakfast (LKD)

9:00 – 9:15am: Welcome and Overview (LKD)

**9:15 – 12:15pm: Presentation & Demonstration (LKD)**

12:10 – 1:00pm: Lunch (Innovation)

1:00 – 1:45pm: Keynote Speech (Innovation)

1:45 – 2:00pm: Awards (Innovation)

2:00 pm: Adjourn

2:15pm: JUMP! (?): Mackey?

# EECS Day Event Format (F) 4/18/2025)

## 9:15 – 11:45am: Design Project Presentation (EE/CpE)

- **9:15 - 9:30 AEMD**
- **9:30 – 9:45 BisonBots**
- **9:45 – 10:00 CoPilots**
- **10:00 – 10:15 CTRL**
- **10:15 – 10:30 Drone**
- **10:30 – 10:45 EMFdetector**
- **10:45 – 11:00 Glow Garments**
- **11:00 – 11:15 IdealB**
- **11:15 – 11:30 Rescuer**
- **11:30 – 11:45 Smart Sensor**

- Each team has 15 minutes
  - 10 min presentation (running video clips helps)
  - 5 min Q&A

# EECS Day Event Format

**11:45 am – 12:15pm: Project Demonstration**

- Active interaction with visitors
- Use computer or monitor screen as poster board
- Expect to entertain the visitors for 5 minutes

# ECE Day Grading – by external visitors

- Grading focus/rubric
  - The project's problem/need and design requirements are clearly presented
  - Presentation slides, with legible texts and good visuals, are helpful in understanding the content
  - Presenters face the audience and speak professionally in confidence
  - Mixed audience

# **EECS Day Slide Format** ( 10 minutes)

1. **Cover (1 slide) [0.5 min]**
   - Title and Members & faculty advisor & date
2. **Problem Definition ( 1 – 2 slides) [1 min]**
   - **Background**
   - **Problem Statement**
3. **Design Requirements (2 slides) [1 min]**
   - Slide 1: Specifications
   - Slide 2: **constraints and rules and regulations**
4. **Solution Design ( 1 – 2 slides) [1 min]**
   - Explanation of the final solution design with schematics and diagrams
5. **Agile Implementation Process ( 6 - 10 slides & videos) [6 min]**
   - **Sprint 1 – increments**
   - **Sprint 2 – increments**
   - **Sprint 3 – increments**
   - **Final integrated system**
   - **photos, screen shots, circuit diagrams**, etc, etc.
   - **Video clips**
6. **Conclusions (1 slide) [0.5 min]**
   - Crisp and clear summary of the presentation

# Presentation Visuals - Revisited

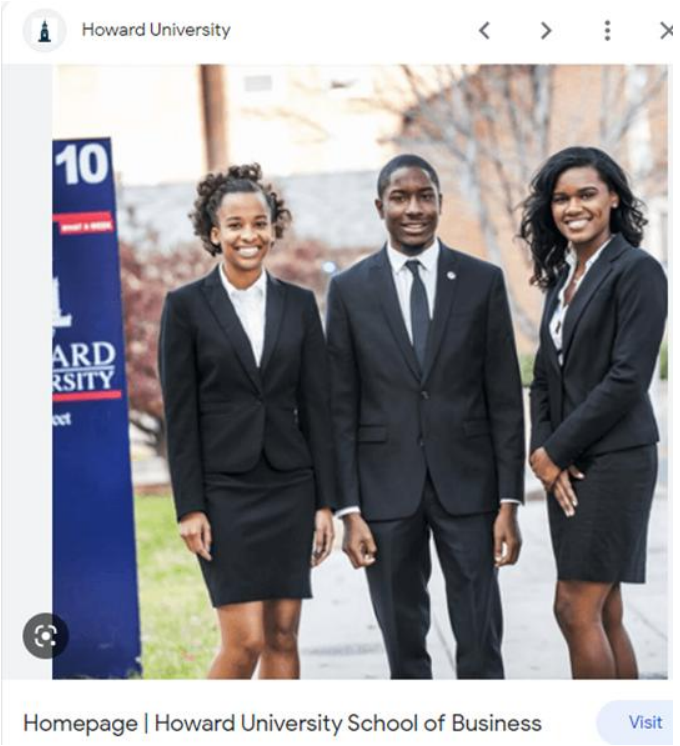
- Slides for Presentation Assistance
  - One nice figure is better than a thousand words.
  - Discrete, not continuous: **Bullet Items (no complete sentences)**
  - Much more visually-oriented
  - Make a slide design simple and crisp
  - No uppercase all the time

# Team Presentation - Revisited

- Plan ahead and do practice, a lot.
- <u>Decide Position and Roles in advance</u>
  - how you will position yourselves
  - what they will do while another member is speaking?
- Make sure that
  - Everyone in the group is doing his/her  share
- Q&A
  - Make sure you understand the question
  - Knowledgeable humility is the best ally

# Dress Code

- (T) April 8 & (T) April 15 Sprint 3 Presentation
  - Dress Rehearsal
    - **Business casual** or **Business**
    - **Slide – EECS Day Format**
- (F) April 18 EECS Day
  - **Business**
  - **Slide – EECS Day Format**



# EECS Day Prep Summary

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|---|---|
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# Final Project Report

**Final Project Report**

“The project final report is a single stand-alone document which captured all key elements of

background,
approaches,
analyses,
experimentations, and
conclusions.

The report length must fit with the complexity and duration of The project.”

# Final Report - Contents

- **1. Cover Page :**
- **2. Summary (****) (or Abstract)**
- **3. Problem Statement**
- **4. Design Requirement**
- **5. Solution Design**
- **6. Agile Workflow and Weekly Plan**
- **7. Project Implementation Process (****)**
  - **Sprints & increments**
- **8. Conclusions**
- **9. References**

# Final Report Format - Details


- NOTE:
  - **Write in full sentences.**
  - **Do not bullet itemize**
- **1. Cover Page**
  - Project Title, Project Team Members, Faculty Advisor, Date
- **2. Summary (or abstract) (****)**
  - 2 – 3 paragraphs of condensed description of the entire report
- **3. Problem Statement**
  - If there is any change, update it; otherwise, use last semester's work
- **4. Design Requirement**
  - If there is any change, update it; otherwise, use last semester's work

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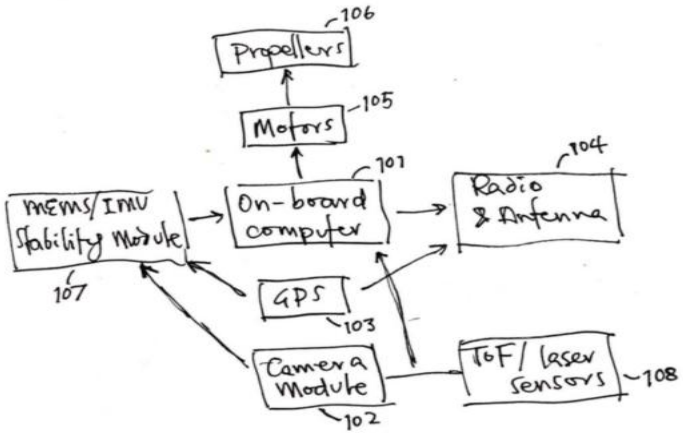
# Final Report Format

- **5. Solution Design**
  - If there is any change, update it; otherwise, use last semester's work. → check my grading comments last semester
  - If not in patent-like description, then re-write it in the patent-like style.
  - Otherwise, use the last semester's




The modern drone is a marvel of advanced technology and combines several essential components to achieve exceptional flight capabilities. Central to its design are four propellers **(106)** powered by electric motors **(105)**, allowing agile flight. The battery powers the drone and charges it efficiently. The Flight LED is equipped with a laser **(108)** that harmlessly targets and tracks enemy Unmanned Ground Vehicles (UGVs) as identified by the camera **(102)**. The high-resolution camera **(102)** captures photos and videos and is crucial for detecting and tracking UGVs. The drone is equipped with a stable landing gear **(107)** for safe landing and protection. The onboard computer [PCB] **(101)** processes the data and coordinates the flight. Ultrasonic ToF **(108)** and barometric pressure sensors ensure precise altitude control. The GPS **(103)** technology enables precise location tracking, while powerful electric motors **(105)** drive the propellers **(106)** to generate thrust.

Conclusion:
In summary, the multi-port waveguide with a Y-port design offers a top s
within waveguide structures. This design closely resembles the base wa
changes and providing a smoother signal transmission path. Although it
the circuit, the compromise is outweighed by the benefits of improved sig
signal loss.

Need to focus on the Top solution only.
Need a diagram with its elements marked with numbers.
Need a description with those numbers.
Need in all a patent style description.

# Final Report Format

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**6. Project Implementation – New section**

- Agile workflow
- Weekly implementation plan

**7. Project Implementation Process(****) --- new section**

- Sprints & increments
  - Describe what you have done
  - Figures and Pictures
  - Flowcharts & Screen Shots

**8. Conclusions**

- Concise and condensed conclusions

- **9. References**

# Final Report - Submission


- **1. Style**
  - 1” margin in all sides
  - Font size: 11
- **2. Submission**
  - Due: (W) April 23. 8:00pm
  - Electronic submission via email

**Grading Criteria – Reminder**

- Ethical Responsibility – Resolving Ethical Dilemma (10)
- New Knowledge Acquisition (10)
- Team Participation (graded by team leader) (10)
- Attendance (Extra) (5)
- Team Assignments + Sprint Presentations (30)
- Socially Responsible Citizen Engineer (10)
- Final Project Report (10)
- EECS Day Presentation/Demonstration (20)