Recruitment Info Session
August 26th, 2016
Agenda

• The Team
• Our Goal
• The Bike
• Technical Organization
• Timeline
• Recruiting and Expectations
Agenda

• The Team
• Our Goal
• The Bike
• Technical Organization
• Timeline
• Recruiting and Expectations
The Team

• 12 MechEs, ECEs, CS majors.

• Diverse backgrounds and fields of interest

• Passionate and interested in electric vehicles and/or motorcycles

Starting members of the team, Fall 2014
Agenda

• The Team
• Our Goal
• The Bike
• Technical Organization
• Timeline
• Recruiting and Expectations
Our Goal

- Build Cornell’s first all-electric motorcycle
  - Starting with bought components, a chassis from a Honda CBR600RR motorcycle.
  - Every year will feature more student built parts

- Enter into the eMotoRacing series
  - Thunderbolt Raceway, 7 laps, 20 mile race
  - Competing against professional teams and other colleges
  - First competition date: July 2017
Agenda

• The Team
• Our Goal
• The Bike
• Technical Organization
• Timeline
• Recruiting and Expectations
The Bike

- Honda CBR600RR Frame
- HPEVS AC-35 Induction motor
  - 130 lb-ft of Torque
  - ~80 hp
- Curtis 1239 500A 3-phase PWM AC Motor Controller
- 36 Lithium Ion Batteries, 120 V
  - ~30 mins of run time
- Custom DAQ and Dashboard system (WIP)
- Orion Battery Management System
- Projected top speed: 110 mph!
Agenda

• The Team
• Our Goal
• The Bike
• Technical Organization
• Timeline
• Recruiting and Expectations
Technical Organization

Administrative
- Business
- Education

PR
- Battery Cage
  - Component Constraint
- Motor Controller Mount

Mechanical

Electrical
- Wiring Harness
- DAQ & Dashboard
- CAN Bus Communication
Administrative Team

• Maintain relationships with sponsors, the university, and other project teams (PR)
• Maintain a healthy working environment within the team (HR)
• Use smart design practices and systems engineering techniques to make sure that we are working efficiently
• Safety considerations and responsibilities
• Website and social media
• Purchasing, budgeting
Mechanical Team

- Design and construct motor/motor controller mounts, battery cage/frame
- CAD models and drawings
- Suspension tuning, brake validation, tire selection
- Sensor mounting and integration
- ANSYS, FEA on critical components
Electrical Team

- Battery management system
- Motor controller programming and selection
- User interfacing (throttle, safety switches, dashboard, etc...)
- Wiring harness
- CAN bus communications implementation
- Sensors & Data collection
- Dashboard construction
Agenda

• The Team
• Our Goal
• Technical Organization
• The Bike
• Timeline
• Recruiting and Expectations
Timeline: Past and Future

• Fall 2014:
  • Acquire a motor
  • Research subsystems
  • Determine battery selection
  • Obtain sponsors (ongoing)

• Spring 2015:
  • Set up working engine test stand
  • Further research of components
  • Design work across all subsystems

• Fall 2015:
  • Bike construction and design
  • Motor Mounting Design
  • Tune chassis
  • Iterative design
  • Motor Electronics & No-Load testing of Motor

• Spring 2016:
  • Start assembling bike
  • Battery Mounting Design
  • Motor Mount Construction
  • BMS & Lithium Ion Battery Integration

• Fall 2016:
  • Find a professional rider
  • Construct battery cage and motor controller mounting
  • Implement DAQ/Dashboard
  • Training of new members

• Spring 2017:
  • Testing, Testing, Testing
    • Suspension tuning
    • Troubleshoot issues
  • Begin research on the second iteration of the motorcycle
  • Compete in the New Jersey eMotoRacing series!
Agenda

• The Team
• Our Goal
• Technical Organization
• The Bike
• Timeline
• Recruiting and Expectations
Recruiting

• Looking for people who are enthusiastic about motorcycles and electric vehicles
• Want people who are self-motivated and willing to learn new skills
• Would like people who are eager to put in the work and time to make this project a reality
• If an upperclassman, then some design experience, CAD or ANSYS skills will help.
Recruiting

• Participate in an exciting, hands-on project
• Gain skills experience beyond the classroom
• Learn how to use industry-standard software
• Contribute to advancing sustainable transportation technology
• Get class credit (ECE 4998)
• Looking for MechE’s and business/PR
Expectations

• Can take for up to 3 credits
  • 4 hours per credit – 3 credit member is expected to put in at least 12 hours a week
• Grading based off of attendance, team leader evaluations, deadlines and milestones, and report submission
Conclusion

• Very exciting time for us! Lots of design work, construction, and competition ahead.

• Anyone who is interested in joining us should fill out an application!
Thank you for your time!

Questions?