

EE31 Junior Design  
Spring 2019  
Project Design – Phase 1B  
Assignment Date and Due Date: check Assignment/Due Date Listing  
A working prototype is the expectation

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**Phase 1B:** Your Bot Spec. Your team must submit a design document to receive credit for this assignment.

- 1) What problem are you trying to solve?
  - a. Identify the customer requirements. Did you take into account weight, motion, size and shape last time? Speak to your instructors to make sure that you have discerned all the requirements from the project description.
  - b. Do the systems engineering: define each module—the inputs, the outputs, and the functionality that changes the inputs into the outputs
    - i. What are modules (subsystems) are you designing and building?
    - ii. What modules (subsystems) are being outsourced?
    - iii. What modules are mechanical only, electrical only, software only, or a combination?
  - c. What does the bot have to do? How does that translate into speed, size, weight, and performance specs? What other specs do you need to document? Amount of damage from a collision? Cost?
- 2) Your bot spec
  - a. Write a bot specification (not to exceed two pages) that defines the technical, physical, and interface details to which your team must design their bot and to which your team's contractor must design the collision detection system for your bot. **The bot specification is a contract that identifies what your team will deliver, the dates that they will deliver, the cost of the bot, the price to the customer, and defines your bot's performance.** Discrepancies from the bot specification to your team's final bot delivery will potentially impacts your grade. Your test plan must validate the spec. Keep in mind that your team must test all specifications to verify and validate that your team successfully accomplished the form, fit, and function defined in your team's bot specification.
- 3) Think about your companion & outsource teams & customer
  - a. What communication do you need to do with your companion bot?
  - b. How will collision detection be designed and implemented?

- c. What is the customer's expectation for your swarmbot? What do they want?