Beta Release

Due: Week of 2017-03-20 *in studio* **Weight:** 10% **Submitter:** Team

Assignment Overview

The Beta Release provides teams with an opportunity to test their preferred design concept through presentation and critique. The presentation and critique will focus on ① the design concept that the team currently prefers and may recommend at Showcase; ② the process the team followed to arrive at their preferred concept; and ③ proposed protocol(s) for verifying and/or validating the team's preferred concept. It is expected that by Beta Release teams will have converged to one (1) preferred design concept that is worth exploring with more formal verification and validation.

Similar to Alpha release in the fall term, during the Beta Release teams will have both a presentation and Question and Answer session (Q&A). Teams will go through the experience twice with different assessors. Based on feedback from the first presentation, teams may adapt their presentation for the second.

Teams should come to the Beta Release with four (4) key items:

- A five- to seven-minute informal presentation[1] in which the team explains their due diligence with regards to:
  1. The current state of their preferred design concept;
  2. The design process followed, and tools used to arrive at the current state of their preferred design concept, including any significant changes to the original RFP; and,
  3. Plans for future design activities, including a tentative testing protocol and risk identification and management.
- Engineering prototype(s) for the design concept(s) incorporated into the discussion.
- Selected and organized evidence that supports the claims that are being made about both the design concept(s) the team has developed, the process that the team followed, and the engineering tools used by the team.
- At least one (≥1) testing protocol that could be used to verify the preferred design concept's performance relative to a key metric.

The Q&A session will follow the presentation and be approximately eight (8) minutes in length. The total length of each Beta Release experience will be approximately 15 minutes.

Assignment Stakeholders

- Your team, who must demonstrate not only a solid engineering design process but an output from that process such that you can show your understanding of both the opportunity and the design itself. It is also an opportunity to receive feedback that will help you progress your towards showcase.
- You, individually, as an aspiring engineering designer who must develop both individual and team skills and who needs to demonstrate integrity with your engineering design values and process.
- Your studio teaching team, who is responsible for helping you to refine and respond to your RFP with credible engineering design, and providing guidance as you approach showcase.

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[1] This should be an "at-bench" style presentation similar to Alpha Release from ESC101. A slide show is not expected, but you may wish to use a computer for displaying key { pictures, videos, models, … }.

- The stakeholders from your RFP, who by definition have an interest in both the preferred design concept and the process of its development.

Requirements

Requirements language in this and following sections are to be interpreted as described in RFC 2119.

Objectives

Develop and Demonstrate the following:

1. Engagement with and development of the opportunity/RFP, including showing the value of any reframing, re-scoping, or pivoting
2. A meaningful design process, comprising *at minimum* a process of framing, diverging, and converging, as shown through representation
3. Design concepts that satisfy the objectives established in the RFP (or as reframed if required)
4. Representation of one or more aspects of the design with low- to medium-fidelity prototypes that provide evidence of learning to improve the design
5. A test protocol to guide your verification of at least one key metric for a potential concept
6. Clear communication the design and process, including through Q&A
7. Effective teamwork, especially in making a short presentation where all members contribute

Constraints

For your Beta Release, your team:

1. **Must** present engineering representations of their current preferred design concept(s)
2. **Must** use at least two (≥ 2) different types of engineering prototype

    As discussed in ESC101 Lecture 24, "engineering prototypes" include *but are not limited to* sketches, drawings, diagrams, calculations, renderings, photos, physical models of varying fidelities, etc.

3. **Must** demonstrate framing, diverging, converging, and representing activities
4. **Must** provide/discuss a test protocol for one key metric
5. **Must** have their current working requirements available (to aid discussion)
6. **Must** present for no longer than seven (≤ 7) minutes (should be at least five minutes)
7. **Must** include all team members in speaking roles[2]
8. **May** only use a laptop to present still images, renderings, movies, or similar media

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[2] While we do not expect you to allocate equal speaking time per team member, teammates should attempt to share the speaking roles equitably.

Criteria

For all of the criteria, "more", "higher", or "greater" will be preferred:

1. The legitimacy and reasonableness of the preferred design concept(s)
2. Due diligence, defined in ESC102 lecture 22 as "Have { I, we } made bona fide, recorded attempts to use the { processes, tools, resources } shown in lecture and practiced in Studio", in:
   - Framing, including the appropriateness and quality of any reframing or refining of the RFP
   - Diverging, including demonstrating serious consideration of multiple, distinct solutions to the RFP
   - Converging, using appropriate tools to refine design concepts and arrive at a preferred design concept
   - Representing, including prototyping, to generate or communicate information about (e.g.) design concepts, design tools, or design practices
   - Planning, including risk management
3. The quality and credibility[3] of your preliminary test protocol[4] as a means of evaluating the performance of one or more design concepts with respect to a key metric.
4. The quality of research in support of any due diligence and of the test protocol
5. Clarity of communication, including value and integration of visual elements, and clear holistic and analytic descriptions of the design concepts
6. Demonstration of equitable contribution of all team members

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[3] Credibility can be demonstrated in many ways, including research from appropriate sources, stakeholder considerations, links to your other courses, links to other disciplines (e.g. medicine), etc.

[4] Note that the expectation is quality, credible test protocol **not test results**. While pilot or preliminary test results might be of value, they are not the focus of the Beta Release assignment.