Research project meeting summary: Trajectory Module for Launcher MDAO

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Plan:

1. Review of previous work
2. Key points discussed
3. Future actions

Review of previous work

- **Equations of motion:** Obtained the EoM in polar 2D coordinates for a non rotating planet. I did it in a badly presented piece of paper but will include a nice version in the first report.
- **Format for summarizing papers:** I am summarizing papers following this structure: ”Context, Methods, Key Results, Relevance to planned research”. I’m writing in a extended way as it is mainly to help me understand, but I will synthesize it better for the reports.

Key points discussed

- **Bibliography about command laws:** Command laws for ascent of dispensable and reusable rockets must be included in the literature review/bibliography
- **LAST:** Dr. Urbano shared with me a previous version of LAST so that I can see the general structure of the program and gain a knowledge of the tool in general

Future actions

- **Bibliography:** Keep working on the bibliography for the first report and presentation. Special attention and deep understanding of the bibliography shared by Dr. Balesdent. Gather more papers by filtering the relevant information for the research project.
- **Coding the Optimization:** For the 2D EoM write direct method (NLP) with single and multiple shooting using analytic derivatives. For simplicity, I can start outside of OpenMDAO
- Create GitHub account and send account information to Dr. Urbano
- 18th or 19th of March there is going to be a final presentation of the students working on LAST.