Air-to-Ground Search Project Scope

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Project Goals:

- What is the main problem you're solving?
  - How can we optimize a search pattern within a time constraint?
- What is the end result you want to achieve?
  - Develop path planning system / backend based on generated inputs
  - Develop multiple competing heuristics and/or algorithms
    - Analyze which works better and why
  - Implement coverage algorithms for path planning system
  - Create obstacle avoidance handler for path planning system
  - Implement frontend framework that facilitates control of all essential systems

Project Boundaries:

- Which features will you implement?
  - The project will have the feature to generate a 2D grid world only
    - The planning system will use this world to navigate around
  - The project will have fixed movement patterns and static obstacles
- What functionality is essential?
  - The project will include a working path planning system with research to back up the system chosen
- What data will you handle?
  - The project will parse the data in the randomly generated world to correctly label obstacles and find a clear path through it
- Which features are out of scope?
  - This project will not focus on 3D mapping environments
- What won't your system handle?
  - This project will not need to support multiple users

Required Resources:

- Development environment
  - Using docker for consistency during development
- Source control system
  - Git
- Code review system
  - Git
- Grid world framework
  - Matplotlib
  - Numpy
  - noise
- Test scenarios
  - Test cases provided by Boeing
- Computing resources for path planning
- Deployment infrastructure
  - .NET Blazor