

## **Week of September 2**

- **Group Meeting: Intro discussion** ○ **Time: 1 hour**
- **Emailing Potential Group Members/Advisors** ○ **Time: 1 hour**

## **Week of September 9**

- **Meeting Planning** ○ **Time: 1 hour**
- **Individual capstone and team contract review** ○ **Time: 1 hour**

## **Week of September 16**

- **Group Meeting** ○ **Time: 1 hour**
- **Researching and project write-up** ○ **Time: 2 hours**

## **Week of September 23**

- **Meet with project advisor** ○ **Time: 1 hour**
- **Researched AI methods** ○ **Time: 3 hours**
  - [https://github.com/reed2ep/SeniorDesignProject/blob/main/Research/Week%206/PathFindingResearch Ethan.pdf](https://github.com/reed2ep/SeniorDesignProject/blob/main/Research/Week%206/PathFindingResearch%20Ethan.pdf) ○ [https://github.com/reed2ep/SeniorDesignProject/blob/main/Research/Week%206/A Star Heuristic Example%20\(1\).pdf](https://github.com/reed2ep/SeniorDesignProject/blob/main/Research/Week%206/A%20Star%20Heuristic%20Example%20(1).pdf)

- Task List Creation ○ Time: 1 hour

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#### Week of September 30

- Meet with Project advisor ○  
Time: 1 hour
- Group Meeting ○ Time: 1 hour
- Generate  
Milestones/Timeline/Effort  
Matrix ○ Time: 1 hour

#### Week of October 7

- More research on specific  
climbing path-finding ○  
Time: 2 hours
  - [https://github.com/reed2ep/SeniorDesignProject/blob/main/Research/Week%207/A Star Heuristic Example Expanded.pdf](https://github.com/reed2ep/SeniorDesignProject/blob/main/Research/Week%207/A%20Star%20Heuristic%20Example%20Expanded.pdf)
- Meet with Project advisor ○  
Time: 1 hour
- Group Meeting ○ Time: 1 hour
- Identify Project Constraints ○  
Time: 1 hour

#### Week of October 14

- Set up environment ○  
Time: 2 hours

- **Meet with Project advisor** ○  
Time: 1 hour
- **Group Meeting** ○ Time: 1  
hour

#### **Week of October 21**

- **Brainstorming on move-sequencing for path-finding (arms vs legs)** ○ Time: 3  
hours
  - <https://github.com/reed2ep/SeniorDesignProject/blob/main/Research/Week%208/Move%20Sequencing.pdf> Week of October 28

- **Meet with Project advisor** ○  
Time: 1 hour
- **Group Meeting** ○ Time: 1  
hour

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#### **Week of November 4**

- **Added Camera functionality**
  - Time: 3 hours
  - <https://github.com/reed2ep/SeniorDesignProject/pull/1>

#### **Week of November 11**

- **Began Researching blob detection and identifying tools to use** ○ Time: 4 hours

#### **Week of November 18**

- Attempted to set up OpenCV library (create binding library) and prototype B.D.
  - Time: 15 hours
- Group Meeting ○ Time: 1 hour Week of November 25
- Researched alternative blob detection methods ○ Time: 2 hours

**Total semester 1: 54 hrs**

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**Week of December 30<sup>th</sup>**

- Identified Emgu CV for blob detection and created initial implementation: 3 hrs

**Week of January 6<sup>th</sup> / January 13<sup>th</sup>**

- Build upon blob detection to include support for other colors and modified parameters to work on actual climbing routes: 5 hrs

**Week of January 20<sup>th</sup>**

- Group meeting : 1hr
- Pathfinding planning (heuristic construction): 2 hrs

**Week of January 27<sup>th</sup>**

- Group meeting: 1hr
- Development on initial pathfinding (simple 1-line path): 3 hrs

**Week of February 3<sup>rd</sup>**

- Group meeting: 1hr
- Research/planning for 4-limb search (4-line path): 2 hrs

**Week of February 10<sup>th</sup>**

- Group meeting: 1hr
- Research/planning for 4-limb search (4-line path): 2 hrs

**Week of February 17<sup>th</sup>**

- Group meeting: 1hr
- Developed 4-limb pathfinding: 5 hrs

**Week of February 24<sup>th</sup>**

- Group meeting: 1hr
- Added visualization of 4-limb path (4-line overlay on route): 3 hrs

**Week of March 3<sup>rd</sup>**

- Group meeting: 1hr
- Code cleanup (moving app pages around and combining similar functions), pathfinding tweaks: 2 hrs

**Week of March 10<sup>th</sup>**

- Blob detection fixes for small holds, pathfinding modifications, added ability to view sequential moves instead of entire path at once: 6 hrs

**Week of March 17<sup>th</sup>**

- Group meeting: 1hr
- Removed hold types and instead added option to apply difficulties to specific holds on route, pathfinding tweaks: 2hrs
- Created draft poster: 2hrs

**Week of March 24<sup>th</sup>**

- Group meeting: 1 hr
- Ui adjustments, button fixes, help button link to repo user docs, pathfinding tweaks : 2 hrs

**Week of March 31<sup>st</sup>**

- Group meeting: 1hr
- Button reordering, added home button on path display page, modified pathfinding to avoid duplicate paths (limbs taking same path up wall): 4 hrs

**Week of April 7<sup>th</sup>**

- Expo
- Self-assessment, final project bookkeeping: 1 hr

**Total Semester 2: 54 hrs**

**Total overall: 108 hrs**