## What we must research and understand:

* 1. **Rolling Shutter Technology:** Study how rolling shutter cameras work in capturing high-speed gestures.
  2. **LED-Equipped Gloves:** Research how LED patterns are used for precise gesture tracking and how they interact with rolling shutter cameras.
  3. **Machine Learning for Smoothing:** Research algorithms that can smooth gesture data.
  4. **3D Simulation:** Study the integration of 3D simulations to simulate gesture recognition and real-world environments where the system could be tested.
  5. **Image Processing:** Learn about techniques for processing images from rolling shutter cameras to extract gesture data accurately.

## What software we must choose from:

* 1. **Machine Learning Tools**: TensorFlow or Pytorch
  2. **3D Simulation Software:** Unity, Unreal, or Three.js, Open GL, Vulkan
  3. **Image Processing Libraries:** OpenCV or SkiKit
  4. **Mobile Application Development:** Android Studio, Kotlin or Java, Firebase, ARCore

## What methodology we must choose from:

* 1. **Sprint Duration:** Should each sprint last one or two weeks?
  2. **Sprint Planning:** Begin each sprint with a planning session to outline tasks and responsibilities.
  3. **Sprint Review:** At the end of each sprint, review progress, address challenges, and plan for the next sprint.
  4. An alternative to the daily standup meetings, we can meet twice a week to discuss progress and discuss any challenges.

## When our two weekly meetings should be:

* 1. Meeting 1: To be discussed
  2. Meeting 2: To be discussed

## The Main Deliverables:

* 1. **Use Cases:** Due October 9
  2. **Project Management Plan:** Due October 23
  3. **Specification Documentation:** Due November 6
  4. **Software Quality Assurance (SQA) Plan:** Due December 11
  5. **Postmortem and Feasibility Prototype Demo:** Due December 18

## What we must deliver by december:

* 1. **Functional Prototype:** 
     1. **Machine Learning Smoothing**: Demonstrate basic functionality of smoothing gesture data in real time.
     2. **3D Simulation**: Provide a simple 3D environment that can visualize basic gestures and their interaction with the environment. (virtual hand with led glove?)
     3. **Image Processing**: Extract basic gesture data from rolling shutter images.
     4. **Mobile App:** Create a simple interface that shows how gestures control basic actions within a mobile application. Also create a mockup using figma of what the full application should look like.

## Plan for Group Contributions:

* 1. **Machine Learning Team:**
     1. **Goal**: Implement smoothing algorithms using machine learning techniques to optimize gesture recognition data.
     2. **Deliverable:** Basic functionality of smoothing gesture data in real time.
  2. **Image Processing Team:**
     1. **Goal**: Process image data from rolling shutter cameras to accurately detect and track gestures in real-time.
     2. **Deliverable:** Basic gesture data from rolling shutter images.
  3. **Android App Development Team:** 
     1. **Goal**: Develop the mobile interface for Android that interacts with the gesture recognition system.
     2. **Deliverable:** A simple interface integrated with gesture recognition.
  4. **3D Simulation Team:**
     1. **Goal:** Create a 3D simulation environment to visualize and test the gesture recognition system.
     2. **Deliverable:** Initial 3D simulation integrated with gesture tracking.

## Timeline:

* 1. To be discussed