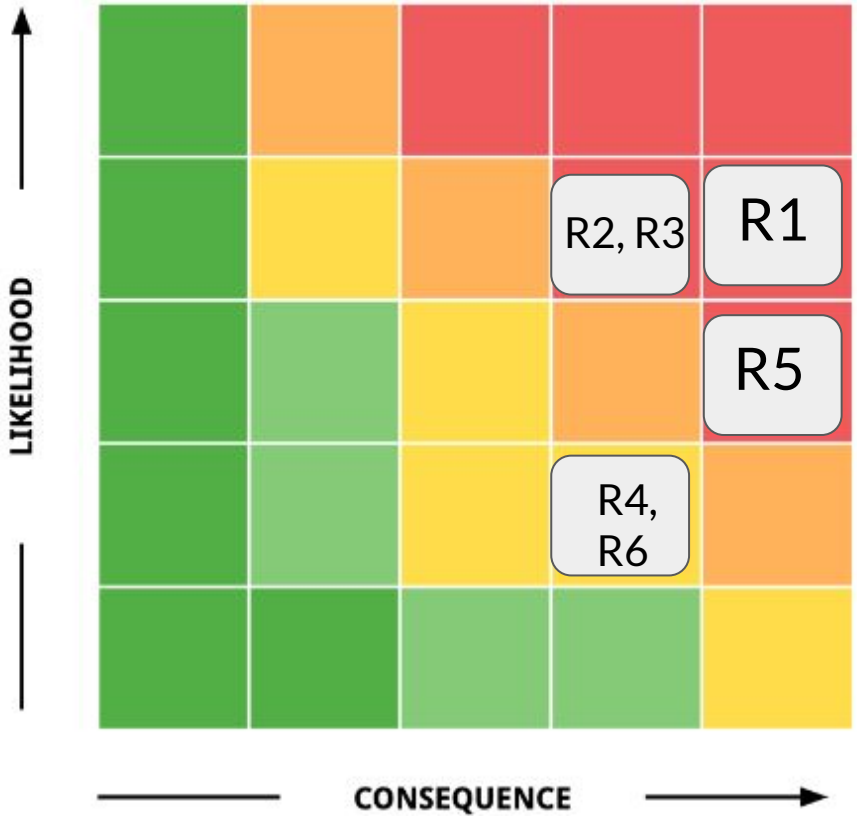
RISKS BEFORE MITIGATION:



Risk- Drone Crashing into obstacles (R1)

Description :

The primary risk is the drone colliding with interior structures such as walls, pillars, ceilings, or equipment within the indoor environment.

It might also crash into the human subject

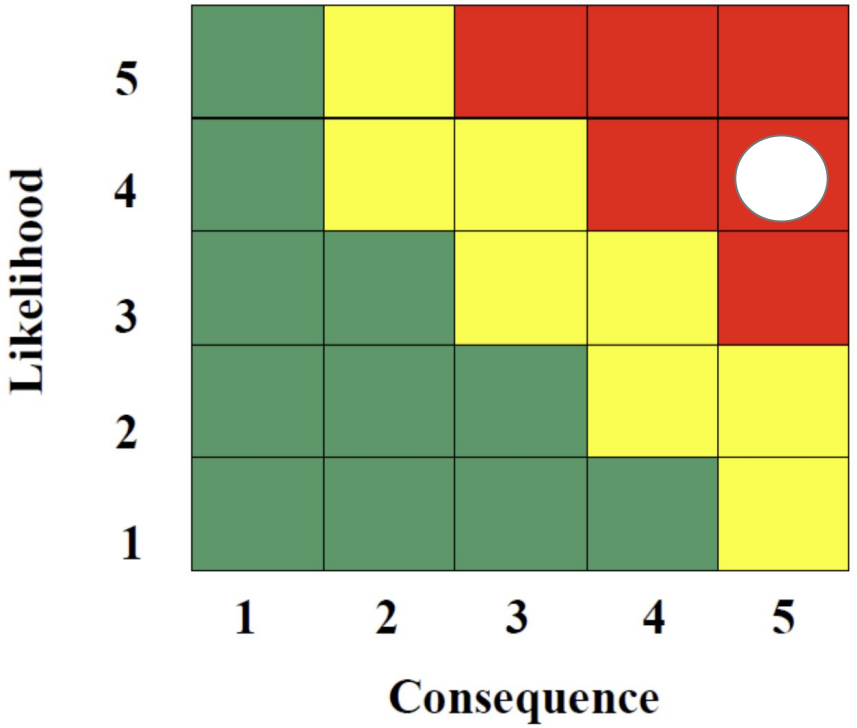
Consequences:

Major delay in the progress of the project

Hardware damage to the drone

Issues in Budget Management.

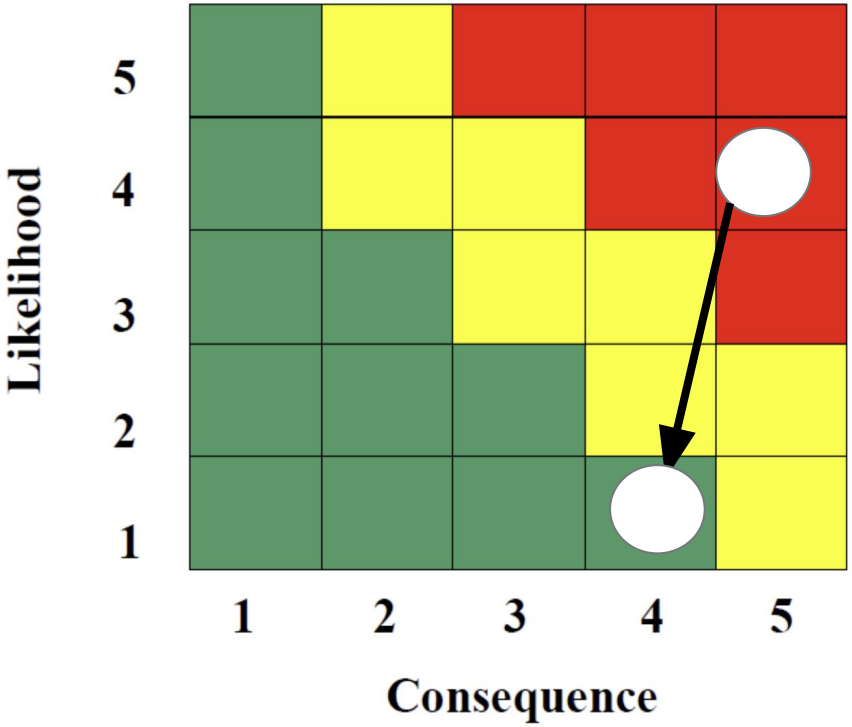
Severe harm or damage to a person



Risk- Drone Crashing into Obstacles (R1)

Mitigations:

1. Using **Simulator** for the planner testing before implementing for the drone. Ensure it achieves performance metrics.
2. Implement **preflight self tests** to check safety critical subsystems
3. **Emergency Stop** after communication timeout
4. **Prop Guards** must be installed
5. Pre-order drone parts for **replacements** if required



Risk- Congestion in Communication Link (R2)

Description :

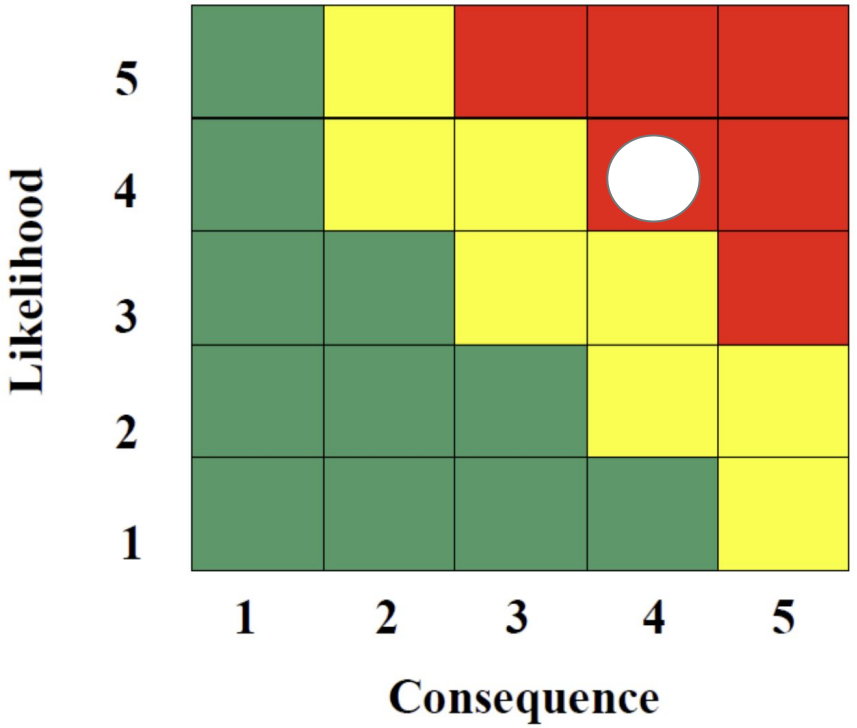
Leveraging from previous experience, we believe that the loss of communication is a major threat to the system.

Consequences:

Loss in communication can cause a latency in the system and in controlling the drone.

System failure during evaluation

Lead to accidents

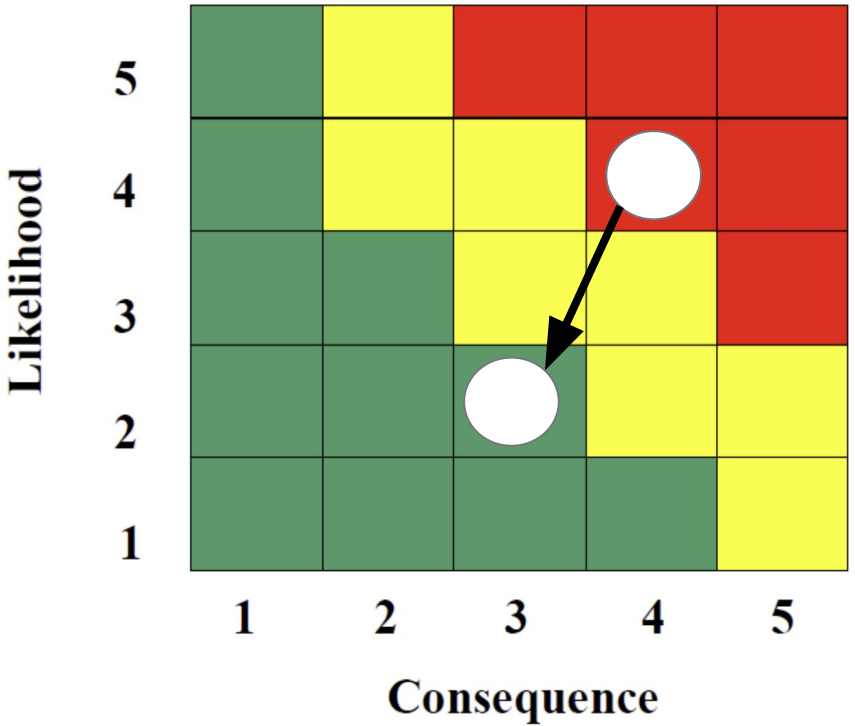


Risk- Congestion in Communication Link (R2)

Mitigations:

1.Establish independent **local network**.

2.Emergency Stop after communication timeout



Risk- Low PSNR for avatar from Drone (R3)

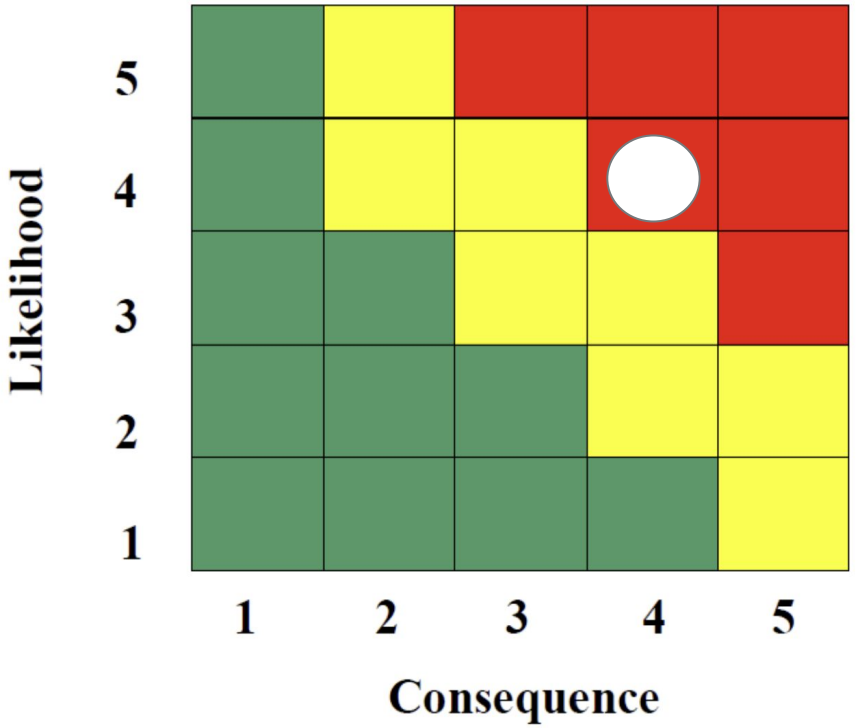
Description :

As the Avatar Control model is test on stationary camera, there might be a significant drop in performance using drone

Consequences:

Fail to visualize high-quality avatar.

Performance Requirements for reconstructing the avatar are not achieved.

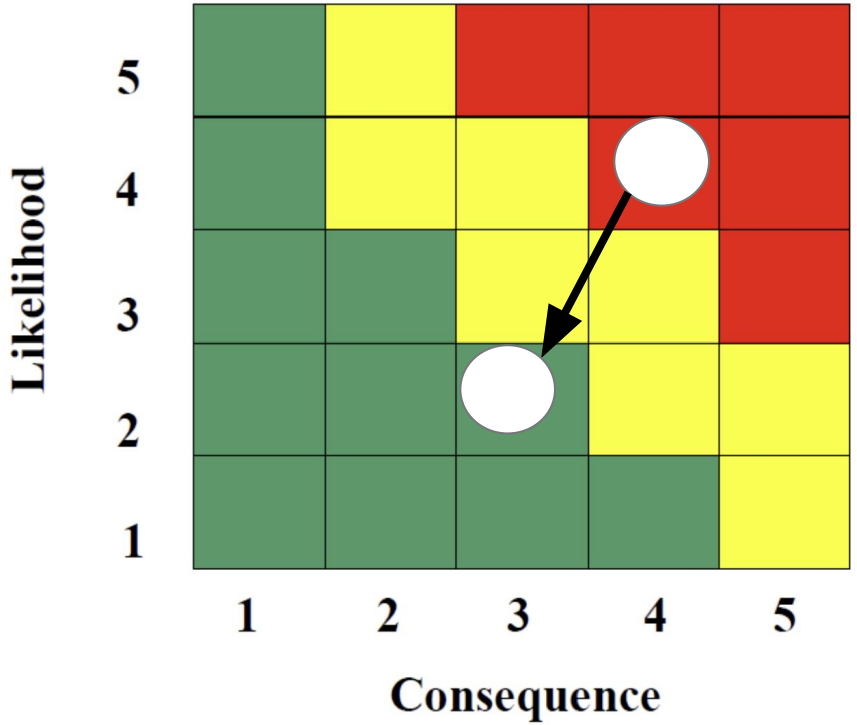


Risk- Low PSNR for avatar from Drone (R3)

Mitigations:

1.Test for the robustness of the 3-D Joint pose algorithm for the drone and collect drone-collected data to finetune the model if required.

2.**Trajectory smoothing** to minimize the jitter.



Risk- Delay in Resources from Meta (R4)

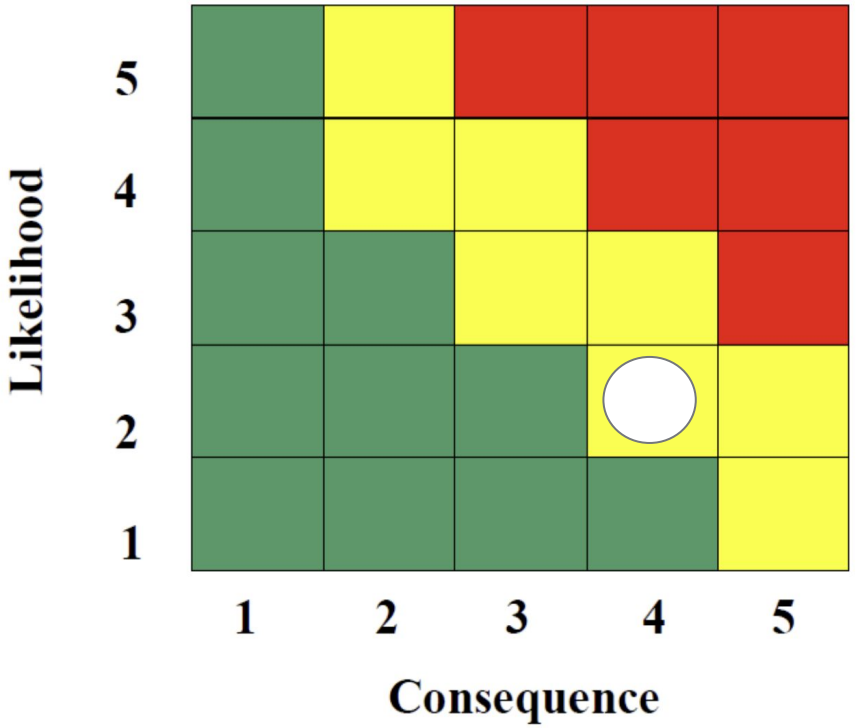
Description :

Delay in computing resources and avatar creation code

Consequences:

Major delay in the subsystem integration.

Not meeting our performance requirements



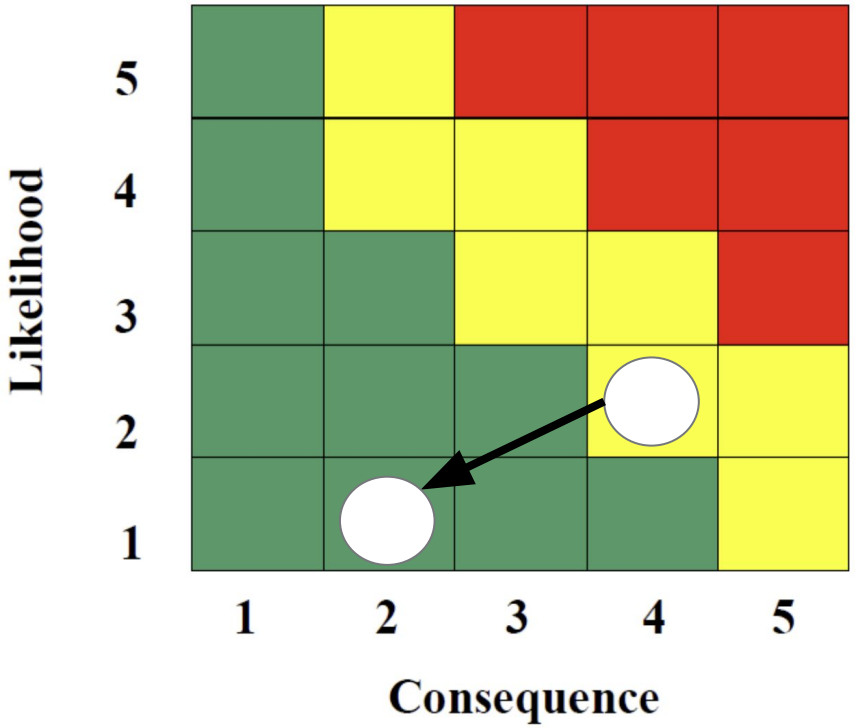
Risk- Delay in code from Meta (R4)

Mitigations:

1.Use the open source code provided from meta

2. Use the mrsd budget for procuring computing units

3. Constant communication with Meta to streamline the process



Delay in procurement of the Drone(R6)

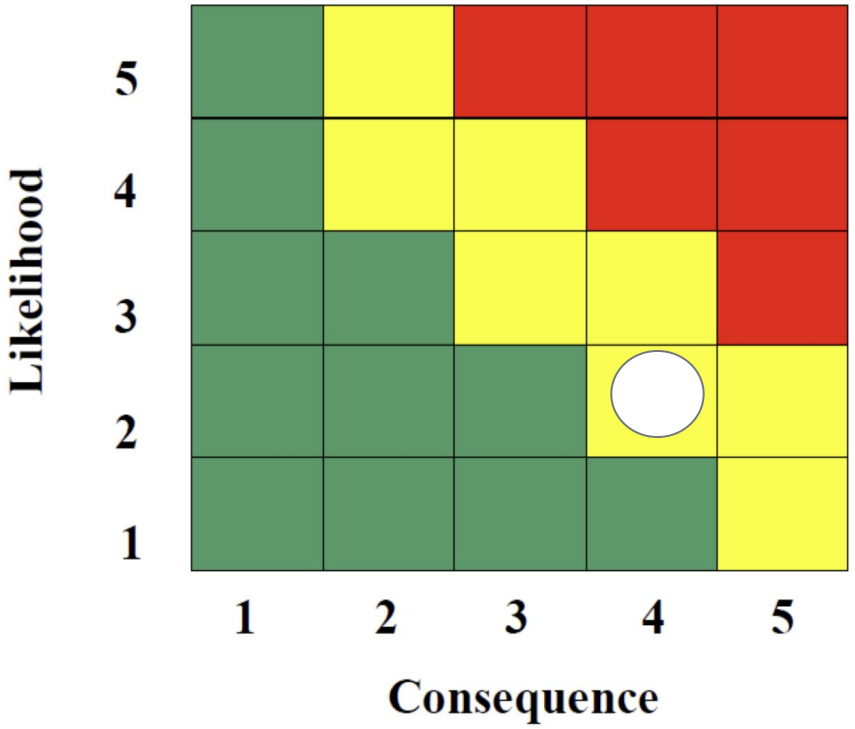
Description :

Delay in procuring a drone which fulfills our basic requirements can cause scheduling issues for the system.

Consequences:

Shift in system integration timeline

Delay in physical testing.

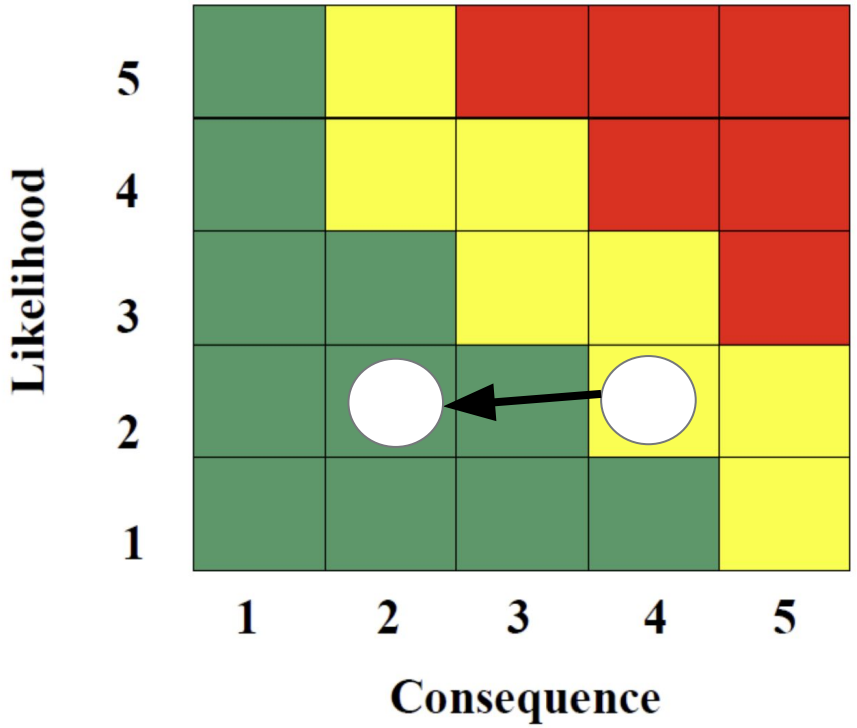


Delay in procurement of the Drone (R6)

Mitigations:

1.Use the drones from MRSD inventory for collecting test data for avatar driving module and integrating sub-systems

2.Test the sub-systems in simulations.



Delay in procurement of the Drone (R6)

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