System Requirement Specifications

# Fly in a confined indoor space

1. Must have the ability to sense its distance from the wall and floor and must have the ability to detect when an unexpected obstruction is present.
   1. Proximity sensors
   2. Disturbances fed into a detection algorithm
2. Must have the ability to steadily move away from the object causing the disturbance, until the disturbance has disappeared.
   1. Position controller must be fed sensor information
3. Must be able to adjust its position once the original correction has been completed.
   1. Information gathered from onstructions must be fed into Position Set Points
4. Attitude controller must be equipped to handle near wall effect.
5. Attitude controller must be equipped to handle ground effect.
6. Must be such that a collision will not hinder the drone from completing its mission.
7. Attitude control must be equipped to stabilise the platform post collision.
8. Must provide the ability to process additional sensor information at real time.
   1. On board accompanying computer (OBAC).
   2. Link to flight controller from OBAC required.

# Complete industrial missions

1. Must be able to switch back and forth between manual and auto flight modes.
2. Must be able to send flight data to the Ground Control Station.
3. Must be able to update mission plan on the fly.
4. Must provide an interface to handle additional sensor/camera data.
5. Must be able to send the live sensor/camera feedback to the ground control station (GCS).
6. Must provide a mechanical mounting mechanism for a sensor/camera payload.
7. Must have adequate thrust to account for the weight additional for a sensor/camera payload.
8. Must have adequate electrical power to run the sensors and the OBAC.
9. Must be equipped for a flight time adequate to complete a mission without needing to recharge (exact length of time to be determined >=20 minutes).

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| Will be handled in future work, this project should allow expansion into these fields. |