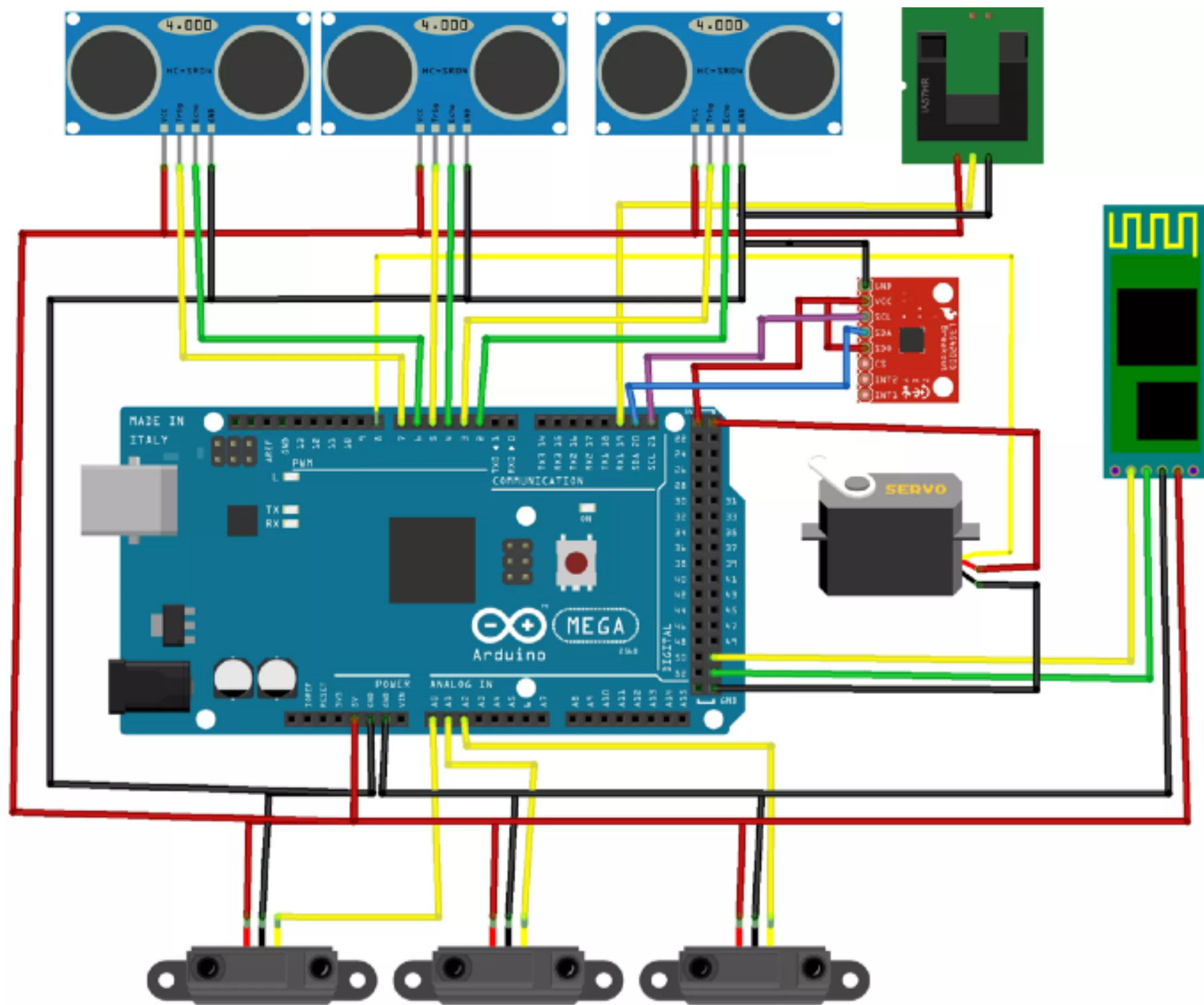


- **Low altitude and pre-landing autonomous flight is subject to complex obstacles such as wire, ropes, buildings, birds, people, etc.**
  - Using tilt rotor mechanism and computer vision, the drone detect the optimal path to landing site and would perform manoeuvres using which are otherwise difficult for a drone or a plane. Using Visual Odometry, the pre-landing phase would use camera and sensors to calculate distance to obstacles and plan a 3d path to the target.
- **During high speed cruise, obstacle avoidance and subsequent route optimisation is a challenge.**
  - Using Optical Flow and Range Finder, the plane could avoid obstacles even at high speeds at reaction time under 5 ms. This can be achieved by using minimal 2d representation of the obstacle once it is in the sensor field. This method has already been demonstrated in a research paper.



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**Collision Avoidance Schematic**