ABSTRACT

Drones are today widely being used in a number of fields. Applications of drones ranges from filming and videography to thermal inspections. The major issue associated with drones is the cost. Drones are generally costly purchase and there is a huge risk of damage while flying drone that is why drones are still not a very common gadget. Also large drones make a lot of noise and need a lot of clear space to fly. They cannot be flown indoors or in dense forests or areas with many trees. So here we build a micro drone with an obstacle detection feature using LIDAR. This drone helps you understand drone flying as well as how obstacle sensing can be done using drones. Also its small size and lower cost makes it less risky to fly it in dense forest of tricky places. The mini drone consists of 4 drone motors with propellers with Arduino Pro Mini F3 EVO controller and a lidar sensor and buzzer. The lidar sensor uses IR for detecting any obstacles in front of it. If any obstacle is detected the lidar signal are decoded by controller to operate a buzzer and led for indication of obstacle proximity alert. The user is constantly alerted with about the proximity by modifying the led and buzzer frequency as per proximity so drone can be controlled accordingly to avoid collision. The small drone uses 4 motors to lift off and control the flight. The RC controller commands are interpreted and used by flight controller through the rf receiver to achieve desired flight movement. The drone makes use of an Arduino Pro mini to sense the proximity using LIDAR and the operate the led and buzzer accordingly. Thus we get a lightweight micro drone that can take off from anywhere, fly indoors or in forests or gardens and sense obstacles using LIDAR proximity sensing.