Autonomous indoor mapping using drone

BTP Thesis-2

Introduction

This work describes my end semester project completed along with three other students in which, we aim to develop an autonomous quadrotor which can efficiently localize itself, plan a trajectory, avoid obstacles and navigate in an indoor environment to collect the image data for creating a map of the environment. This can be very useful in applications like disaster relief operations where human lives can be at risk. Fig.[1], Fig.[2], Fig.[3] and Fig.[4] show some of the results obtained from the simulation performed on gazebo and ROS.

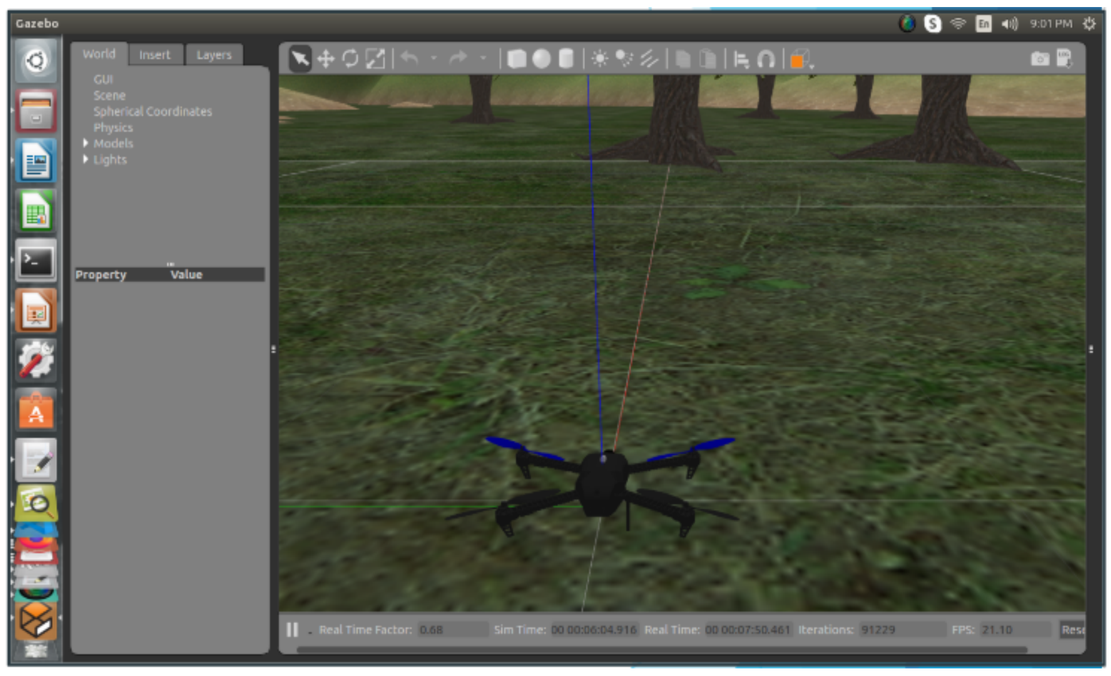

Fig. 1: PX4 Iris Drone

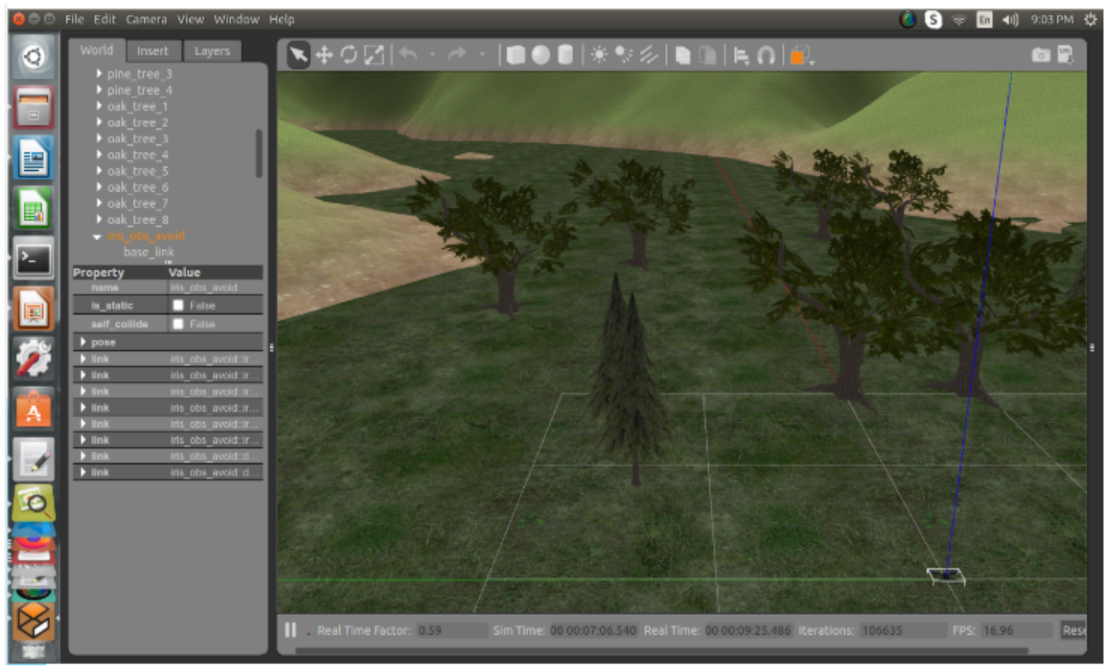

Fig. 2: Drone environment in simulation

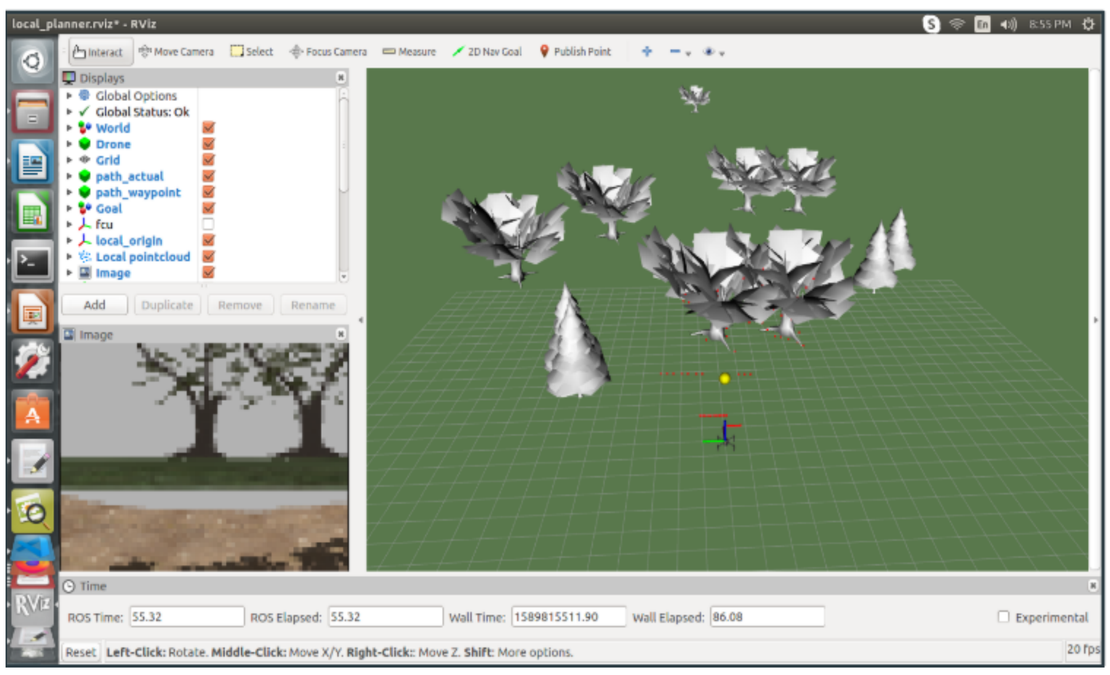

Fig. 3: Point cloud generation

Fig. 4: Local Mapping and Trajectory Planning