Progress Presentation-I

e-Yantra Summer Internship-2017
Indoor Environments Mapping Using UAV

Samaahita S Belavadi
Rishabh Beri
Mentors: Vamshi, Simranjeet

IIT Bombay

June 6, 2017

Overview of Project

Overview of Project
Overview of Task
Task Accomplished
Image - 1
Image - 2
Image -3
Challenges Faced
Future Plans
Thank You

- Project Name - Indoor Environments Mapping Using UAV
- Objective - The objective of this project is to map the indoor environments using a UAV equipped with a depth camera
- Deliverables -
  1) UAV with depth camera, processor mounted on it
  2) Code and Documentation for each task
  3) Video tutorials explaining solutions for each task

Overview of Task

Task No.	Task	Deadline
1	Install ROS, Control the quadrotor with keyboard in simulation	25th May
2	Land drone on an Aruco marker in simulation	31st May
3	Place Realsense R200 camera on the quadrotor model	2nd June
4	Generate 3D maps in simulation with keyboard controlled quadrotor	6th June
5	Literature review of autonomous mapping	8th June
6	Autonomously generate map in simulation	17th June
7	Interface Realsense with Cubieboard	20th June
8	Place setup of 3D camera and processor on drone	22nd June
9	Generate map in real time using drone (Manual control)	27th June
10	Project report	3rd July

Task Accomplished

Task No.	Task	Status
1	Install ROS, Control the quadrotor with keyboard in simulation	Completed
2	Land drone on an Aruco marker in simulation	Completed
3	Place Realsense R200 camera on the quadrotor model	Completed
4	Interface Realsense R200 camera with ROS on laptop and generate pointclouds	Completed
5	Generate 3D maps in simulation with keyboard controlled quadrotor	Completed

Image - 1

Samaahita S Belavadi
Rishabh Beri
Mentors: Vamshi, Simranjeet

Overview of Project
Overview of Task
Task Accomplished
Image - 1
Image - 2
Image -3
Challenges Faced
Future Plans
Thank You

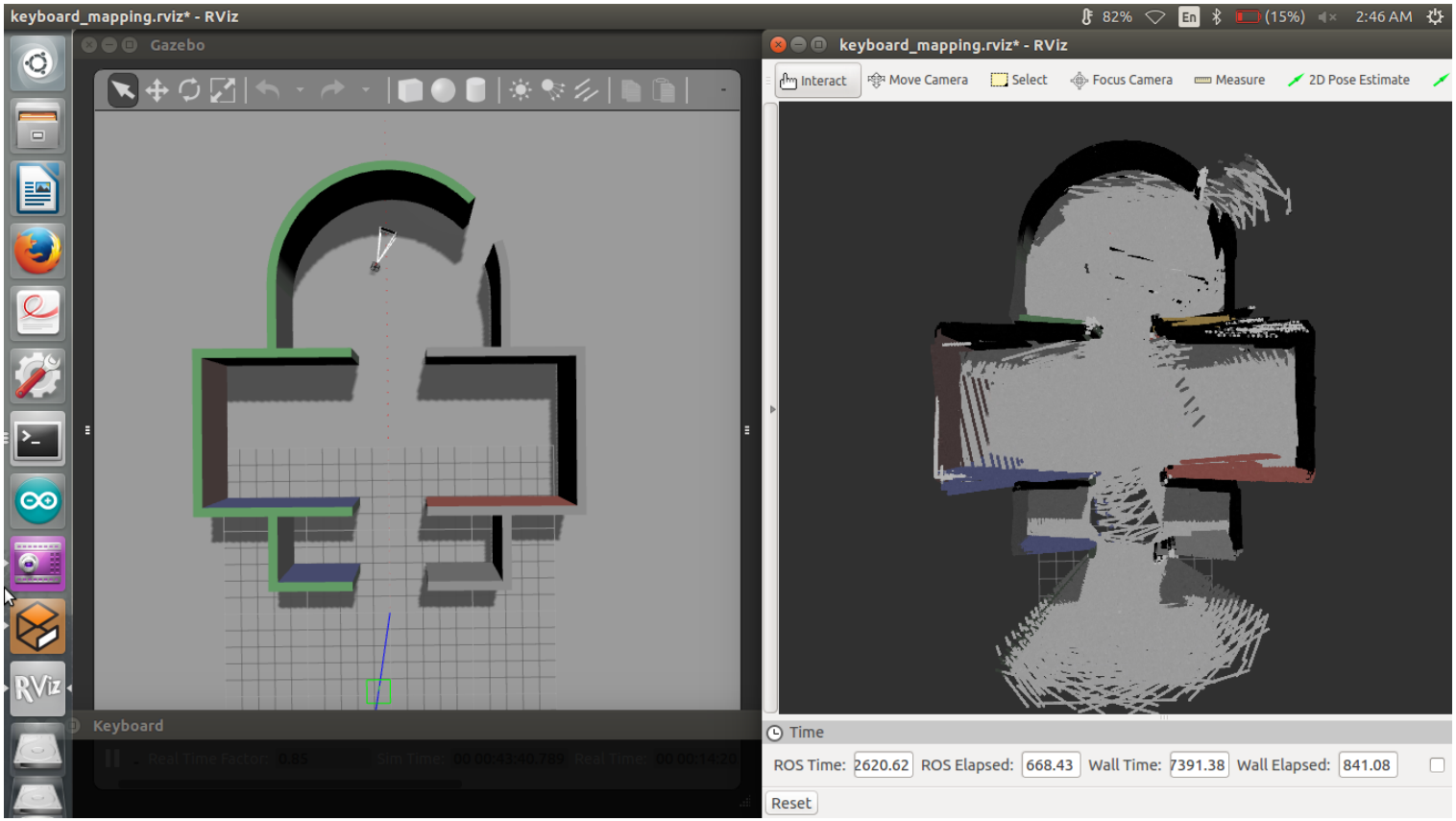


Image - 2

Samaahita S Belavadi
Rishabh Beri
Mentors: Vamshi, Simranjeet

Overview of Project
Overview of Task
Task Accomplished
Image - 1
Image - 2
Image -3
Challenges Faced
Future Plans
Thank You

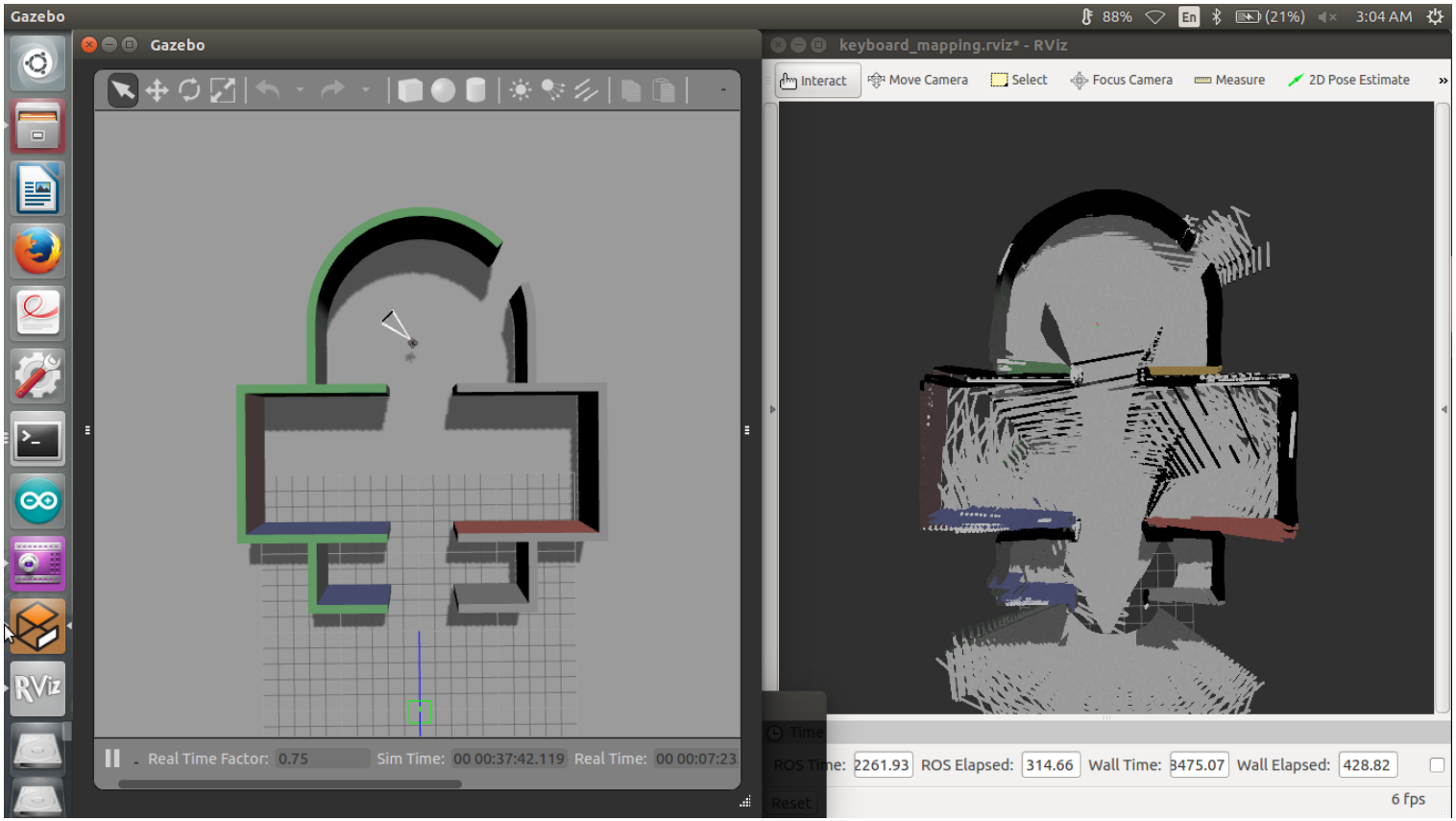
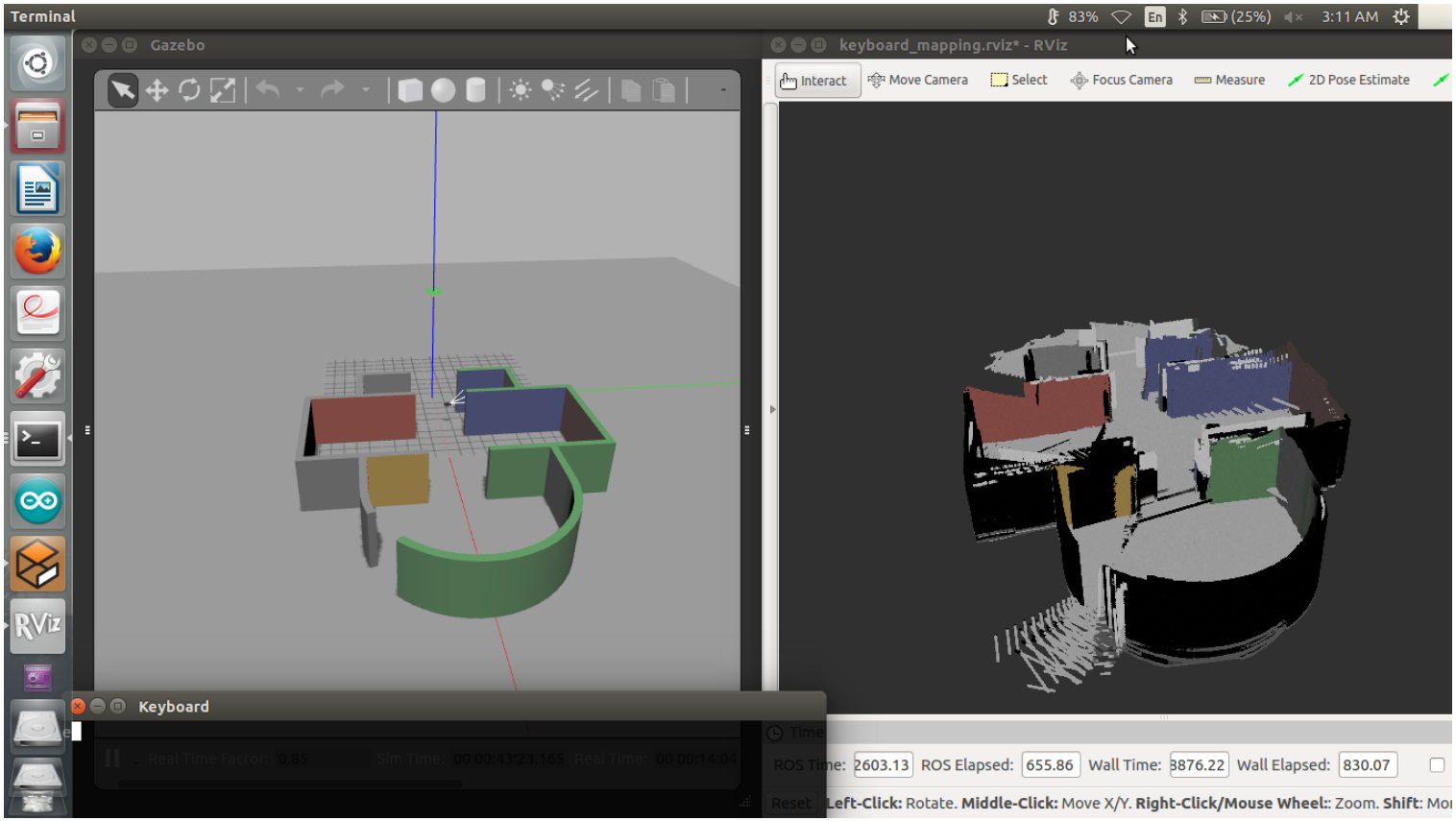


Image - 3

Samaahita S Belavadi
Rishabh Beri
Mentors: Vamshi, Simranjeet

Overview of Project
Overview of Task
Task Accomplished
Image - 1
Image - 2
Image -3
Challenges Faced
Future Plans
Thank You



Challenges Faced

Overview of Project
Overview of Task
Task Accomplished
Image - 1
Image - 2
Image -3
Challenges Faced
Future Plans
Thank You

- Tuning PID parameters for navigating the drone in simulation
- Realsense R200 camera model was in URDF format which is not supported by Gazebo
- The default encoding of the depth image is mono16 which had to be converted to 16UC1 for obtaining 3D point cloud data
- The frame of the depth image had to be changed to that of the color image for obtaining 3D point cloud data

Future Plans

Overview of Project
Overview of Task
Task Accomplished
Image - 1
Image - 2
Image -3
Challenges Faced
Future Plans
Thank You

Task No.	Task	Deadline
1	Literature review of autonomous mapping	8th June
2	Autonomously generate map in simulation	17th June
3	Interface Realsense with Cubieboard	20th June
4	Place setup of 3D camera and processor on drone	22nd June

Thank You

THANK YOU :)