Glossary

3DR UBlox GPS + Compass Module – Global Positioning Device for use with the Pixhawk

Adafruti Motor Shield – Add-on to Arduino Uno for added control of motors

Arduino Uno– Microcontroller for use with GMapping System

CUDA – Compute Unified Device Architecture is a parallel computing platform and programming model implemented by GPUs

eDVS – Event-based Embedded Dynamic Vision Sensor

EKF SLAM – A class of algorithms which utilizes the extended Kalman filter (EKF) for simultaneous localization and mapping

FastSLAM – Algorithm that recursively estimates the full posterior distribution over robot pose and landmark locations, yet scales logarithmically with the number of landmarks in the map

FPS – Frames Per Second

GMapping – Highly efficient Rao-Blackwellized particle filer to learn grid maps from laser range data

GPU – Graphical Processing Unit

HMC5883L Compass – Sensor used to estimate pose of robot in GMapping system

Jetson TX1 – GPU designed to work with ZED

Laser Range Finder Sensor LRG/LIDAR – Laser range finder for use with GMapping system

Mouse Sensor PAW3504 – Sensor from optical mouse used in GMapping system to do odometry

Odometry – Use of data from motion sensors to estimate change in position over time

OS – Operating System

Pixhawk Autopilot – High-Performance Autopilot-on-Module

PVC – Polyvinyl Chloride Piping

RAM – Random Access Memory

Raspberry Pi 3-Model B – Microcontroller for use with GMapping System

ROS – Robot Operating System, a collection of software framework for robot software development

SDK – Software Development Kit

SLAM – Simultaneous Localization and Mapping

TeraFLOPS – A unit of computing speed equal to one million million (1012) floating-point operations per second

Thumper – All terrain chassis with 75:1 gear box

USB – Universal Serial Bus

ZED – 3D camera for depth sensing