Visual Navigation Using ORB-SLAM3

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Goals

- Create feature map using ORB SLAM3
- Transmit navigational data to phone application
- Direct user to destination
Layout Overview

ROS
ORB SLAM3
Feature Map and Position
Compressed Image Files

UNITY

Camera Stream
Directions
ORB SLAM3 Essentials

Initialization.
KeyFrames.
Tracking & Mapping.
Merge & Loop Close.
ROS

R-Robot O-Operating S-System
Set of software libraries
Nodes/Topics for sending and receiving data
Handles communication to Unity using ROSBridge Websocket
Unity

Game Engine for UI/Simulation

Uses ROS# Package to communicate with ROS

Calculates position using realtime data from ROS

Provides interface for navigation
Demo

https://youtu.be/AXorT7DuGW4
Questions?