

IntelliBot

Scrum Review Document

Sprint 1: Project Initiation and Planning

Discussion Points:

- Need to research the topics and ground work on SLAM and Human Detection
- Explore the topics and messages on parrot drone “tum_simulator” ros package
- Explore the usability of large scale detection SLAM with the “tum_simulator”
- Research topics on extracting HOG features and image gradients for human detection
- Ensure integration of Travis CI and Coveralls for ROS packages

Actions Items:

S.No	Task	Owner
1	Research SLAM techniques and allied ROS packages	Venkat, Amrish
2	Initialize Github repository with necessary stubs	Amrish
3	Generate UML diagrams for the proposed work	Venkat
4	Integrate Travis CI and Coveralls	Venkat
5	Research and create notes for HOG and image gradients	Amrish
6	Update sprint plan and review documents	Venkat, Amrish

Sprint 2: Development and Testing

Project Status: **Delayed**

Challenges faced:

- No straightforward availability of tum_simulator (AR Drone) package for ROS Kinetic distribution
- No straightforward implementation/availability of LSD SLAM package for ROS Kinetic

Completed:

- Prototyped LSD for a rudimentary path
- Prototyped Human detection

Current Issues:

- Including 3rd party ROS packages (dependencies) in Travis CI

Open Tasks from current sprint:

- Complete testing routine for all the classes
- Identify methodology to include 3rd party ROS packages in Travis CI
- Generate complete demo of the project
- Refine Control module with more intelligent PID control

Discussion Points:

- Need to account for the delay due to implementation of LSD SLAM
- Cause of Delay: Non-existence of LSD SLAM for ROS Kinetic and sparse documentation on LSD SLAM

Action Plan:

- Identify alternative methods to incorporate 3rd party ROS packages on Travis CI - Venkat
- Refine Testing modules - Amrish
- Refine Control Module - Venkat
- Implement doxygen style commenting - Venkat/Amrish
- Eliminate cpplint and cppcheck issues - Venkat/Amrish
- Generate complete demo of the project - Venkat

Sprint 3: Wrap Up

Project Status: Completed

Challenges faced:

- LSD SLAM loses tracking erratically - [Open](#)
- Point cloud generated by the SLAM can't be incorporated to rviz - [Open](#)

Completed:

- Completed implementation of the proposed software package exhibiting desired functionality.
- Refactored all the classes to modularize the classes and isolate ROS dependency from core functionality. Also include level 2 integration test and level 1 unit testing frameworks.
- Generated a demonstration of the package.
- Ensured Google style guide compliant code with CI integration and automated testing.
- Released v0.1 version of package in Github platform.

Discussion Points:

- Successfully refactored classes to include level 1 unit testing, based on the feedback
- All the open tasks have been completed except for couple of unavoidable issues
- Observed a reduction in coveralls due to addition of 3rd party package in project directory
- Inclusion of 3rd party package was necessary to eliminate Travis build errors

- Unexpected delays from previous sprint have been counteracted by strategic planning of remaining activities.