M&D COnsulting   
Cloud/ROS/PI Project Scope

December 29, 2017

# Overview

## Project Background and Description

This project is a basic knowledge primer and collaborative effort focusing on existing programming technologies, industry learning, and knowledge exchange around Point Cloud, ROS (Robot Operating Systems), and data vision/capture/interpretation. It is a learning tool and programming exercise using robot simulation.

## Project Scope

Leveraging open source programing sources for ROS simulation, RVIS visualization, and wiki based simulation tools we are limiting the scope of this project to propose and document a simple Point Cloud simulation within a robot simulated world.

## High-Level Requirements

The knowledge exchanged in this document will consist of basics for the follow:

* Linux virtual machine on Windows OS Installation
* ROS simulation software Installation
* Point Cloud simulation with RVIS using the Kinect IR camera integrated with the Turtlebot simulated robot.
* Image integration within image library with ROS simulation software

## Deliverables

This document will provide a high-level proposal for an application integration using Point Cloud renderings, ROS Library calls for Robot movement, and data acquisition tools within the simulated world to introduce a new user to the concepts of robotics simulation and data Point Cloud acquisition and integration with ROS.

## Affected Parties

Using open source software, simulation programs and OS emulators, accessible by anyone with internet access, we will share a simple ‘How To’ approach for leaning and leveraging basic building blocks associated to virtual simulation, data acquisition , and data integration for inspired learners.

## Affected Business Processes or Systems

No cost and simple systems for education will open new doors to those who have a general builder’s interest in ROS and Point Cloud technology and develop a deeper learning and understanding of ROS and its advantage.

## Specific Exclusions from Scope

The example presented will document resources, and steps necessary, to use a robotic simulation (ROS) or RVIS to integrate a Point Cloud vision capture systems (via Kinetic/LiDAR), with a Linux simulated OS (Virtual Machine) on a Microsoft Platform.

## Implementation Plan

To meet the goals of this project, we will be discovering, installing, and integrating, software and simulated components from various internet resources. The goal is not only to perform the integration, but to open doors at each level of integration for others to expand their knowledge on Virtual Machines, ROS programming Language, RVIS Point Cloud data acquisition with off the internet software wiki solutions. This entire package is an introduction to the basics of robotics and robotic vision technologies.

## High-Level Timeline/Schedule

We plan to deliver documentation and example sources within 3 weeks from start of the project (Jan 15st, 2018)

# Approval and Authority to Proceed

We approve the project as described above, and authorize the team to proceed.

|  |  |  |
| --- | --- | --- |
| Name | Title | Date |
| Marc Tagne | PME/DE |  |
| Don Taylor | CSA/PE |  |
|  |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |
| Approved By |  |  | Date |  | Approved By |  |  | Date |