Point Cloud Generation

Mohit Rajan
Nandini Menon
Pooja Sivakumar
Sanjay Govind

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FISAT

Abstract

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This project is to generate a point cloud and visualize it .

Objective

A 2 joint robotic arm with a sensor attached sweeps 360° and generates a point cloud and visualizes it.

Introduction

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- A 2 joint robot with a ultrasonic sensor as end effector sweeps 360°
- The sensor detects the distance from the obstacles present and we calculate the x, y and z coordinates .
- The coordinates are compiled and stored as point cloud data ,these points are plotted and visualized using point cloud library.

Proof of Concept

Proof of concept

- The robotic arm with the sensor as end effector controlled by a arduino was build in references with Uarm-ROB
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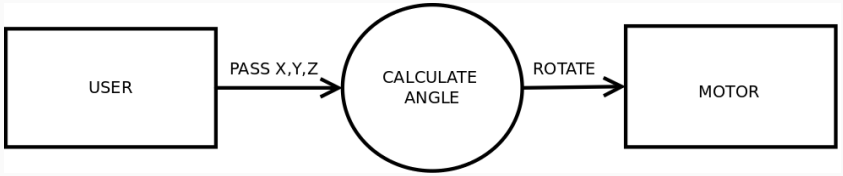
Design

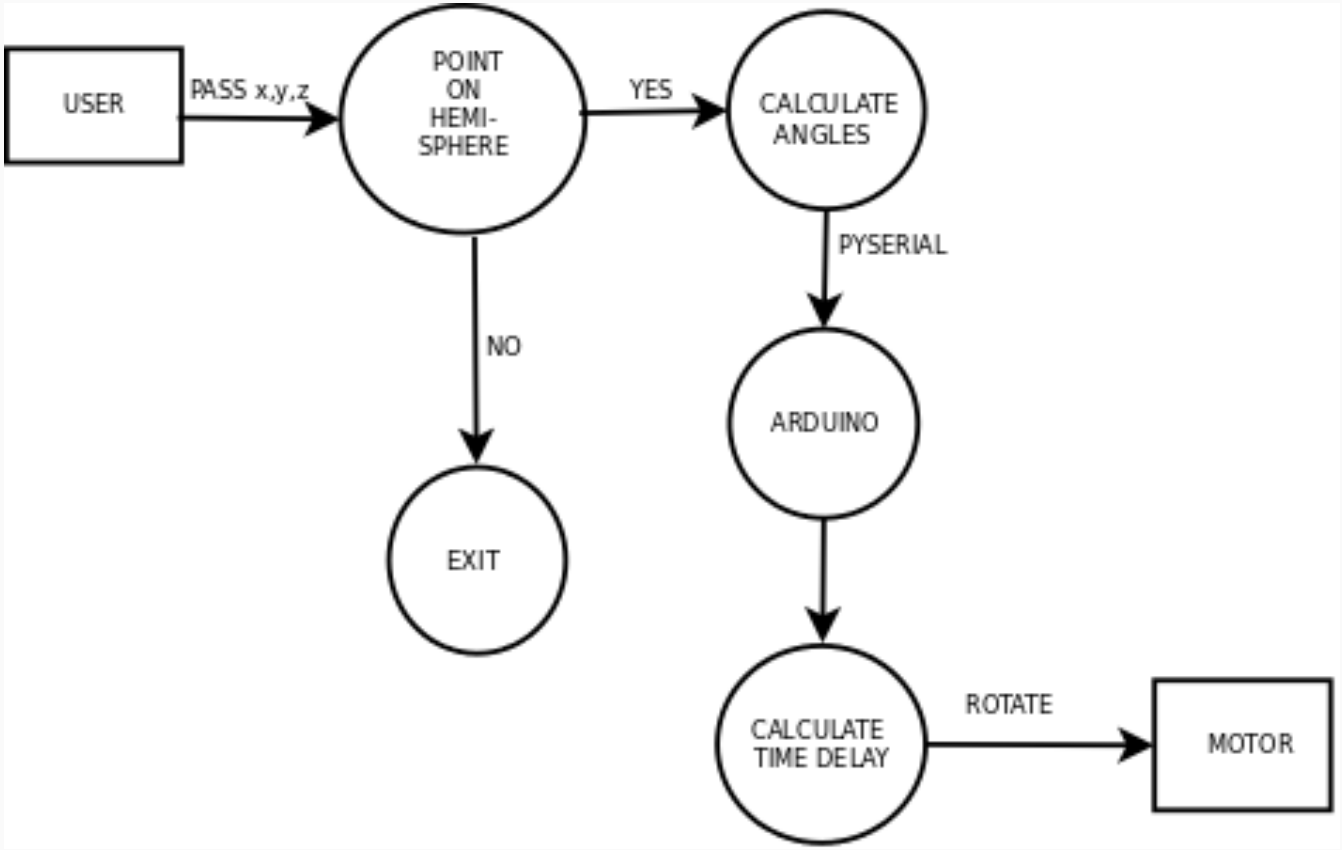
Design

Data Flow Diagram

Level 1



Level 2


USER
PASS x,y,z
POINT ON HEMI-SPHERE
YES
CALCULATE ANGLES
PYSERIAL
NO
ARDUINO
EXIT
CALCULATE TIME DELAY
ROTATE
MOTOR