HUMAN INTERFACE DEVICE 3D POINTER

PROJECT MEMBERS

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CONTENTS

DEFINITION

Human Interface Device: 3D Pointer

involves an API(Application Programming Interface) and hardware design of a 3D pointer device which is composed of multiple ultrasonic distance sensor connected to an Arduino device.

PURPOSE

1. **Gathering data from multiple ultrasonic distance sensors in real time by using Arduino.**
2. **Computing 3D position of the pointer object.**
3. **Recognizing special gestures.**
4. **Preparing a software package comprising an API.**
5. **Testing the device in virtual 3D environment.**

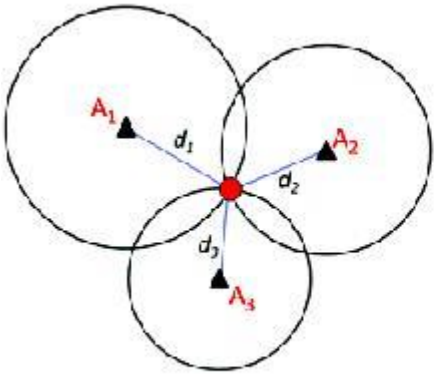
PROBLEM

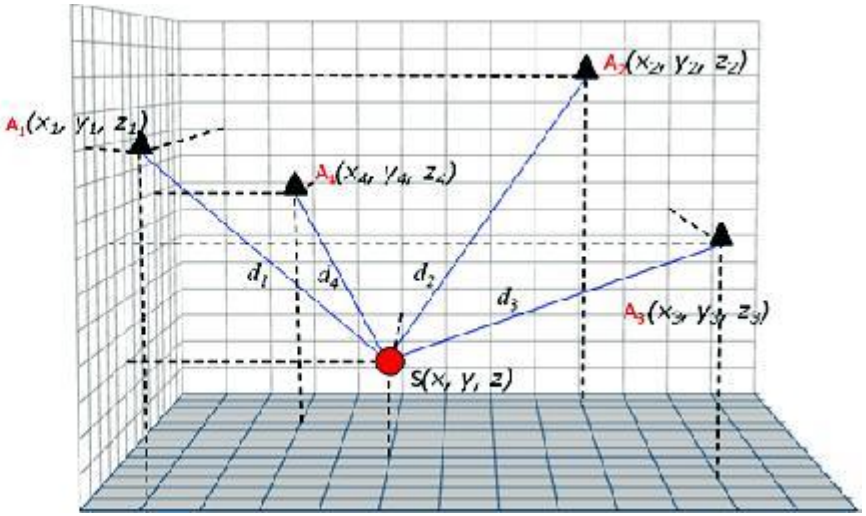
The aim of this study is to transfer the spatial data in real life to the computer in 3D and visualize it in various field.

- **Cost.**
- **Maintenance and installation.**
- **Usage areas.**
- **System sizes.**
- **Interaction requirements.**

ANALYSIS

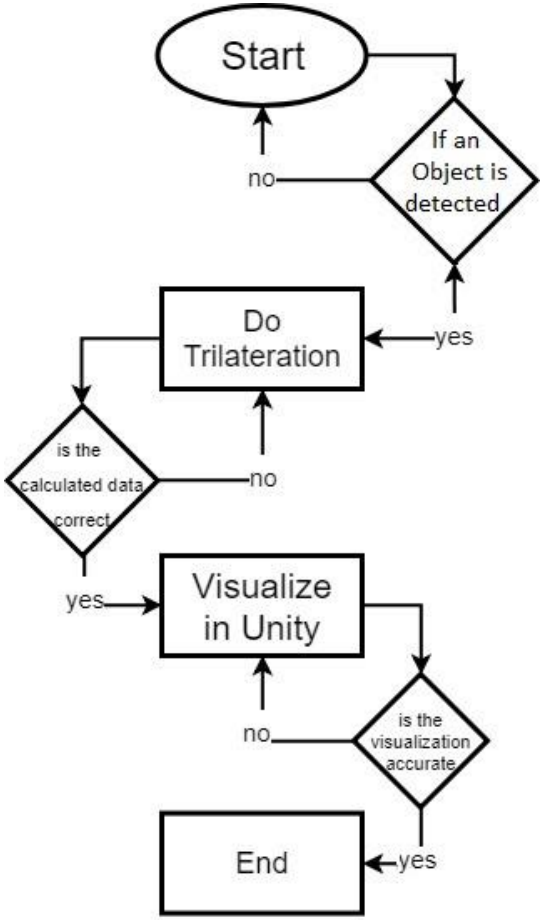
Trilateration Technique





SOLUTION

- **Ultrasonic Sensors**
- **Trilateration**
- **Arduino**
- **Unity**



RESULT AND CONCLUSION

Some companies have developed such devices to mainly use for virtual reality and entertainment. Haptic devices are also used in industry. In this project, a cost efficient, easy-to-setup device will be designed which can be controlled by free hand.

Some Advantages:

- Using 3D applications interactively.
- Ease of maintenance and installation.
- Can be used in desired sizes.
- Providing 3D input for utilization.

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THANKS FOR LISTENING!

Question?