Nythra

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Nythra Open Source product - light ears ahead.
Robotics gadget powered by AI

Hyderabad.

Overview

This open source project deals with developing an electronic gadget that can empower blind people, Using camera sensors and computer vision algorithms we intent to develop a new cost effective device that can convey the visual information to a blind person by translating the data into digital audio. Similar to braille there are certain rules and conventions in this project that are supported by intuitive mathematics. This augmented reality gadget relies on computer vision, deep learning, microcontrollers, sensors, audio devices, electronics in general and acoustics.

Goals

1. Creating spatial perception, without hindering the natural hearing abilities.
2. Deploying facial recognition and other features combined with proposed ways of conveying using headphones using an android gadget or a practical alternative for processing. This is named as the “first problem”
3. Creating a consistent true translation in other words, painting the world using appropriate sounds for blind people to perceive. This is named as the “hard problem”

Specifications

Project is divided into various modules, namely,

- Documentation
- Algorithms and codes
- Controllers
- Sensors
- Actuators
- Android deployables
- Design

Documentation

The documentation provides a means to navigate through the project by hyperlinking the appropriate words. It provides a chronology of decisions made on the other modules.

Algorithms and codes

Place to find all the commented codes and instructions in chronological order as per the documentation. The codes are accompanied with forenotes and relevant documents, that talk about the theory, approaches and other technical details for prototyping and deployment.

Controllers

As the project deals with algorithms that are computationally significant. This is an exclusive module for information regarding various controllers, their computational capabilities, and also general information like cost and availability.

Sensors

This module deals with sensors sorted based on chronology as well as performance. Information regarding connections, deployment and general information for each sensor are provided in order to assist prototyping.

Actuators

As this robotics project demands audio actuators currently (open to discussion). Information regarding connections, deployment and general information for each actuator is provided in order to assist prototyping.

Android deployables

One of the main motives of the project is ease of accessibility. The product is expected to be deployable in handheld devices like phones for more general outreach and feedbacks. Though it is not our intention to completely depend on smartphones. Using the computational abilities of the smartphones has its pros. The module and its sub-modules will provide information regarding the android Applications and relevant SDKs.

Design

This module displays information regarding various ideas on designing the wearable gadget. 3D designs that deals with accommodating sensors and other design aspects for manufacturing. The module displays the prototypes deployed by the contributors with technical details involved.

Current efforts

- ### Creating an online platform

  We are currently working on getting our open source project online.

- ### Expanding contributors base

  Looking forward for more brilliant minds to suggest changes on where the project lacks.