

Audible Location Tracking Device

Project

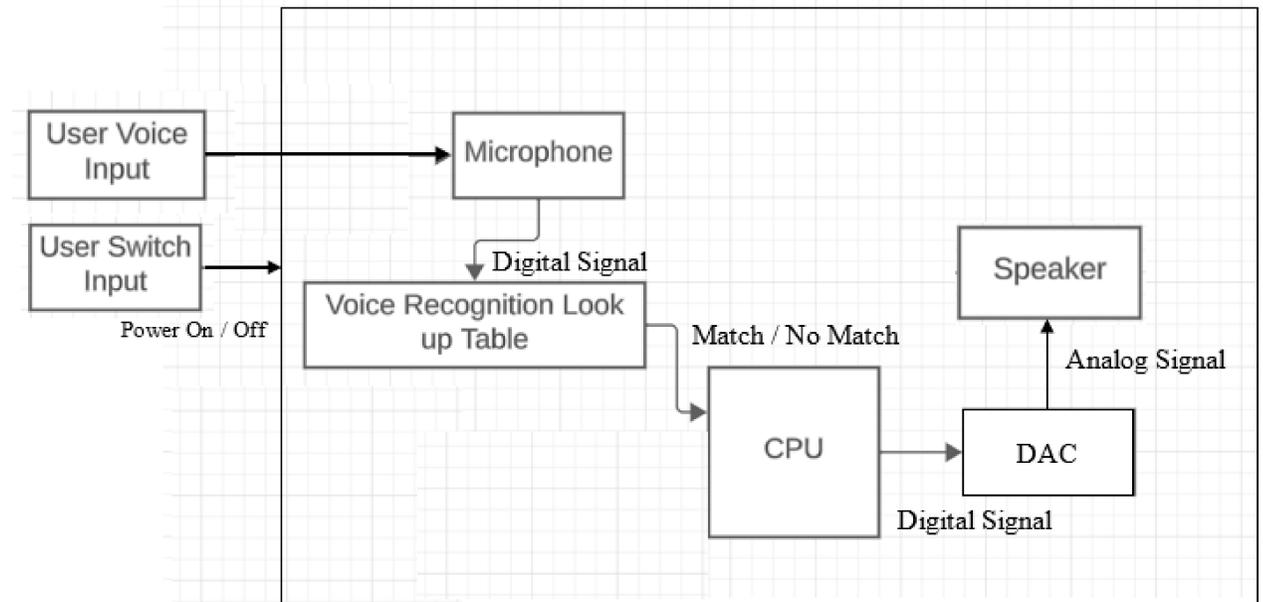
Lost objects slow us down and cause frustration and confusion.

Even current methods of object location are reliant on other devices or systems such as Bluetooth.

I have created a device for object location that is self-powered and self-contained and can be activated with a simple voice command.

Using my device, phones, wallets, purses, and anything else you can think to stick together will be easily and reliably located.

System



Methods

Audio Input / Output

- mini omni-directional microphone
- piston driver

Power

- CR2032 Battery
- toggle switch for power

Control

- ESP32-S3-DEVKITC-1

Speech Recognition

- audio conversion to spectrogram for comparison
- voice samples pre-loaded as spectrograms for comparison

Conclusion

The device accomplished the goal set out in the beginning. It is activated by a voice command and guides users to its location.

- I learned a lot about speech recognition and various methods that are and can be used to achieve device voice control. I also learned that for a voice control system to function effectively offline, a great deal of training data is required.
- Using higher quality materials and more time, the device can be improved to be smaller, more energy efficient, and more reliable. The device can also allow for custom wake-words with the correct programming. I hope that this design can be pushed to industry where it can become marketable

