Spotify Jukebox:

MakeUofT 2022

An NFC-controlled custom music player

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Introduction

- The idea was initially formed as a joke between the group members as an interesting and unique way to play music.
- The group sought out a fun (and probably pointless) method to play or pause music without needing to click on playlists in the Spotify software. In other words, a **useless invention**.
- Gaining inspiration from online projects, the group set out to accomplish this task with programmable cards and a hidden sensor.

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Alan Walker

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3:46

Our Team

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Our Team

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ABOUT ME

→ 2nd year Mathematics major
→ interests: data science, hardware, proving things
→ experience: Java, Python, R, SQL

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→ 2nd year Computation and Design major
→ interests: education, art, and tech
→ experience: Java, Python

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PLAYLIST

THANKS!

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Demo

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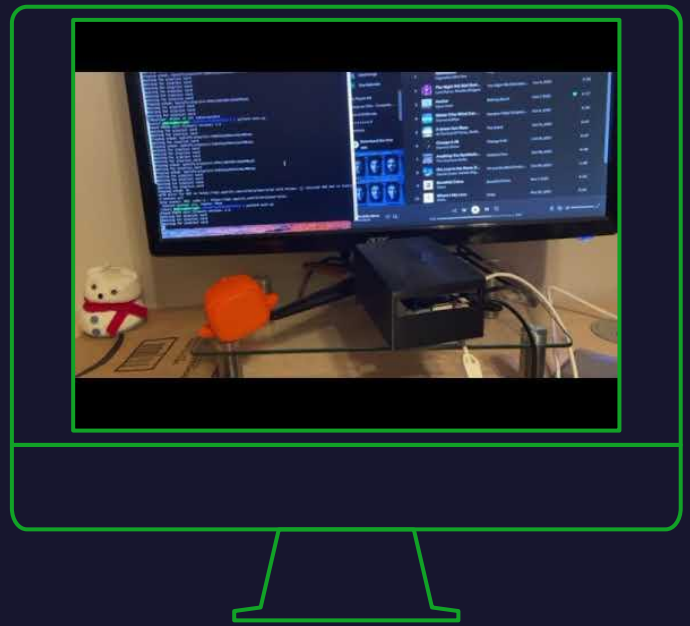

Spotify Jukebox Demo

A working demonstration of implemented features.

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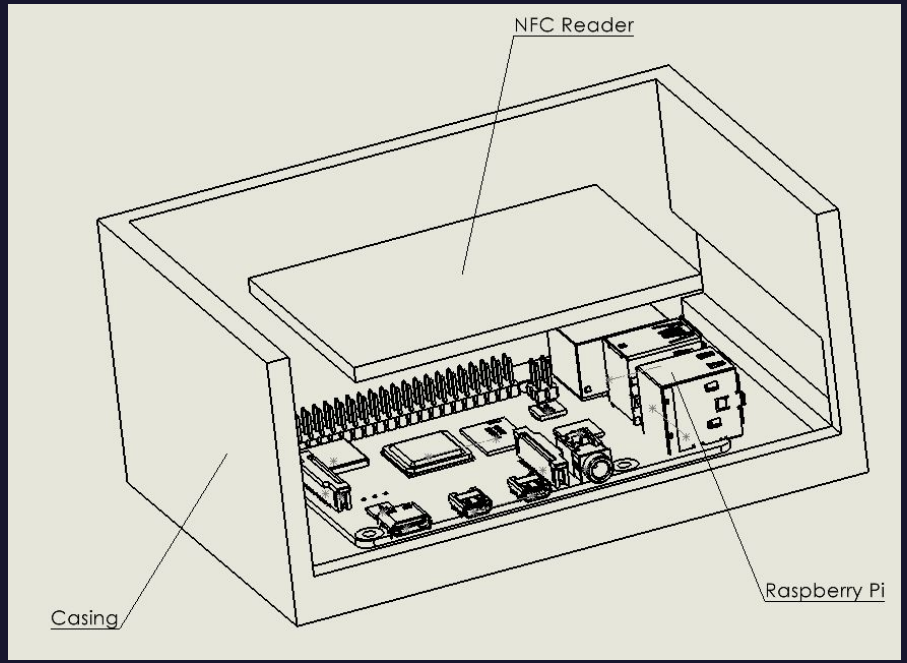
Building Process

Engineering Drawing



Hardware Used

Base	Sensor	Input	Case
Raspberry Pi 4B	**PN532 NFC HAT**	**NFC Cards**	**3D-Printed Enclosure**
Runs the program we made, in Raspberry Pi OS.	NFC/RFID Sensor; allows us to read the cards.	Cards with Spotify UIDs written to them.	A case we designed and printed that holds the Pi and the PN532 together.

Software Used

Language

Python

Our language of choice

Packages

spotipy

Allows us to interact with Spotify API using Python

pn532

Used to read and modify data read from PN532 module

API

Spotify

Allows us to access features such as: next track, pause, change playlist

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Challenges + Reflection

Making the NFC Module Start Reading Cards

- We were unfamiliar with the PN532 and how to use the switches and pins. There was very little documentation online for our specific model of the PN532-HAT.
- We had trouble figuring out how to decode the hex code into a string that Spotipy would recognize.
- Through trial and error and reading the Wiki on PN532, we found the correct switches.

A Group Member Stuck in Toronto

- One group member was unable to physically work on the project with the rest of the group.
- The group communicated with him using Discord video call throughout the project.

Areas of Improvement

→ If we had the time, we would like to also make the code to write data into blank NFC cards.

→ Find a way to print our card designs directly onto the cards.

→ Make a case for the product that has screw holes and cooling system.

→ Refactoring code to have better error handling, better scaling, etc.

Thank you for watching our presentation!

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Alan Walker - Spectre
https://www.youtube.com/watch?v=fUsfFH057co

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