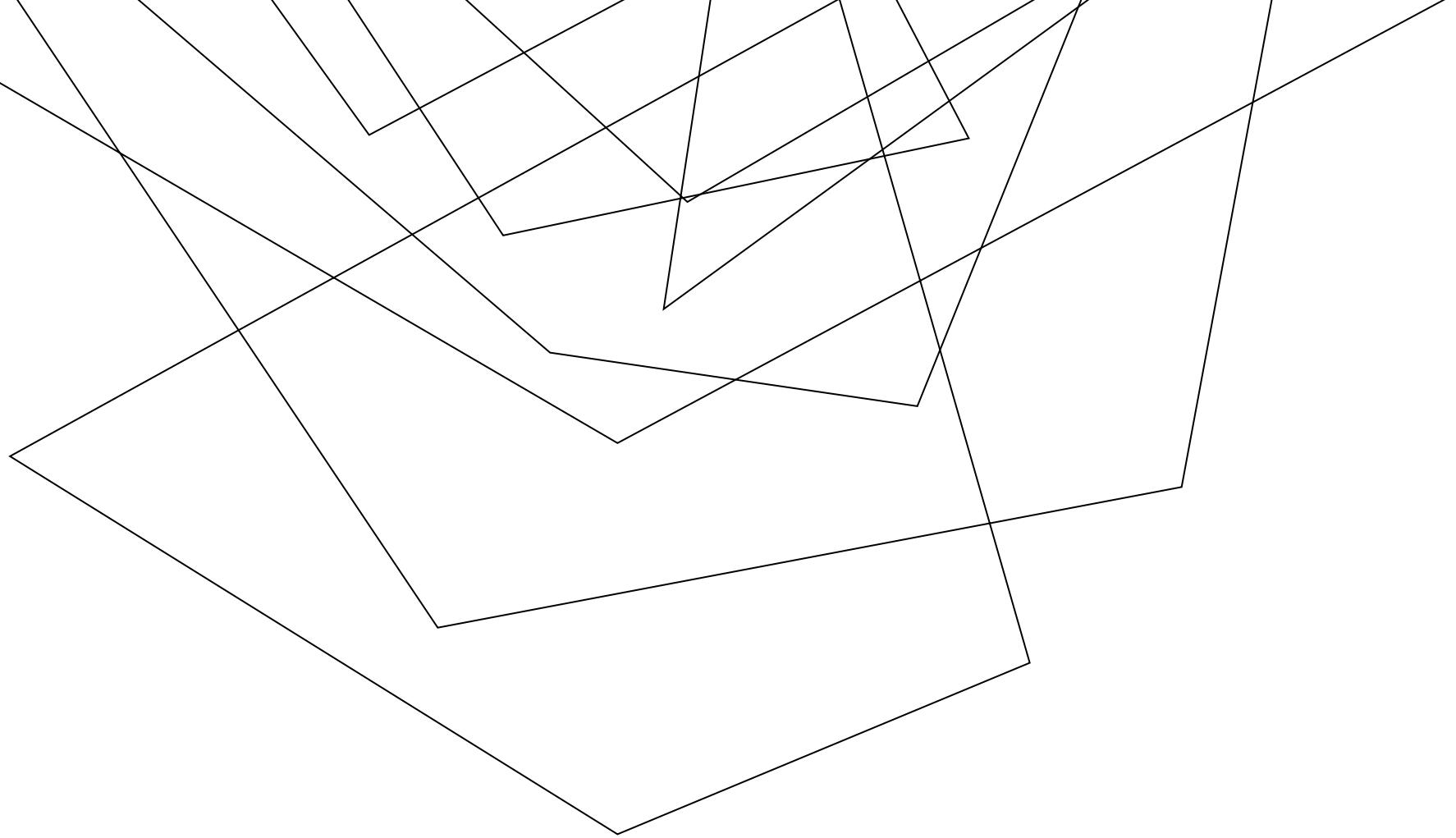


VECO

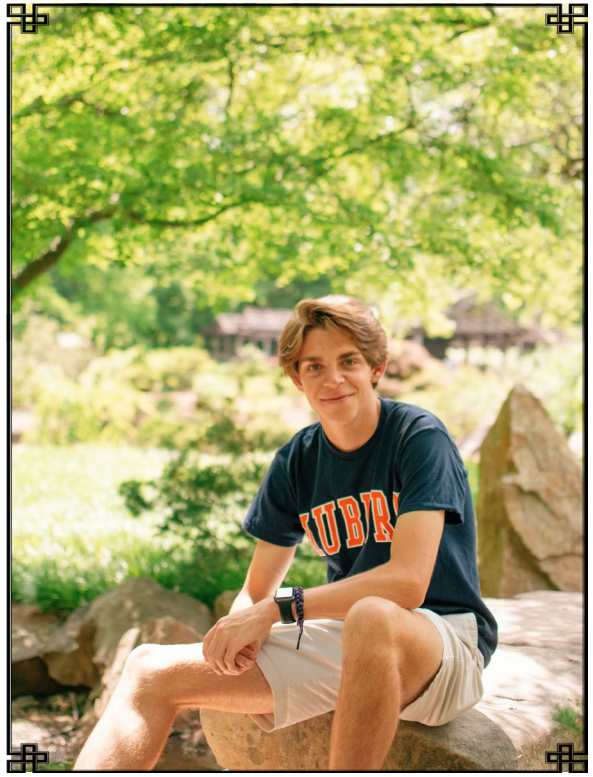
Products designed for vehicular convenience.

Project Team 51: ENGR 1110-001

MEET OUR TEAM

Mason Cooper

- Scrum Master
- Software Engineering
- Homewood, Alabama
- Enjoy working with technology
- Some coding experience



MEET OUR TEAM

Evan Hodges

- Product Owner
- Computer Science
- Collierville, Tennessee
- Experience in Python and Cybersecurity
- Some experience with hardware components

MEET OUR TEAM

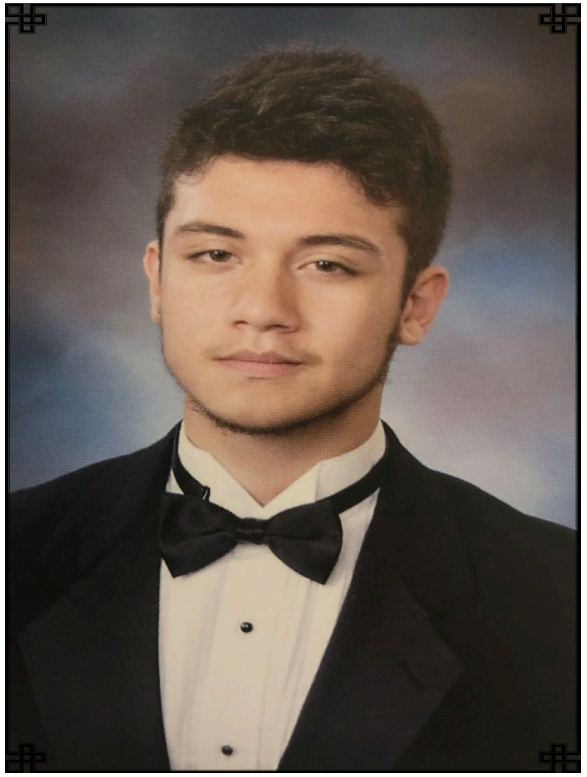
Alex Strickland

- Developer
- Computer Science
- Fayetteville, Georgia
- 5 years programming experience in various languages
- Developer for a professional software company

MEET OUR TEAM

Owen Long

- Developer
- Software Engineering
- Seoul, Korea
- IT Fundamentals Certified
- Experience in C, C++, Java, and Python



OUR PRODUCT

TurnBeats

- Syncs turn signal to the music playing in the car.
- Eliminates audio and visual disruption from former signal.
- Makes music more enjoyable to enhance driving experience.
- Provides customer with a convenient vehicle improvement.
- Increases road safety with possible signal usage increase.

RELEVANCE

- Entertainment Feature
- Help Spotify grow in Korea and attract business
- Partnership with Big Music Companies
- Set Kia apart from other car manufacturers
- Promotes Safe and Attentive Driving

HOW IT WORKS

INPUT	SPOTIFY	ANALYZE	OUTPUT
User enables the program from the GUI.	Links to user account/accesses Spotify API to determine song.	Finds the correct song BPM and the current time.	Turn signal flashes to match song's BPM.

THE CODE

- The GUI:

  We are using Python's built-in Tkinter module.

- The API:

  Spotify's free API is the perfect tool for accessing information.

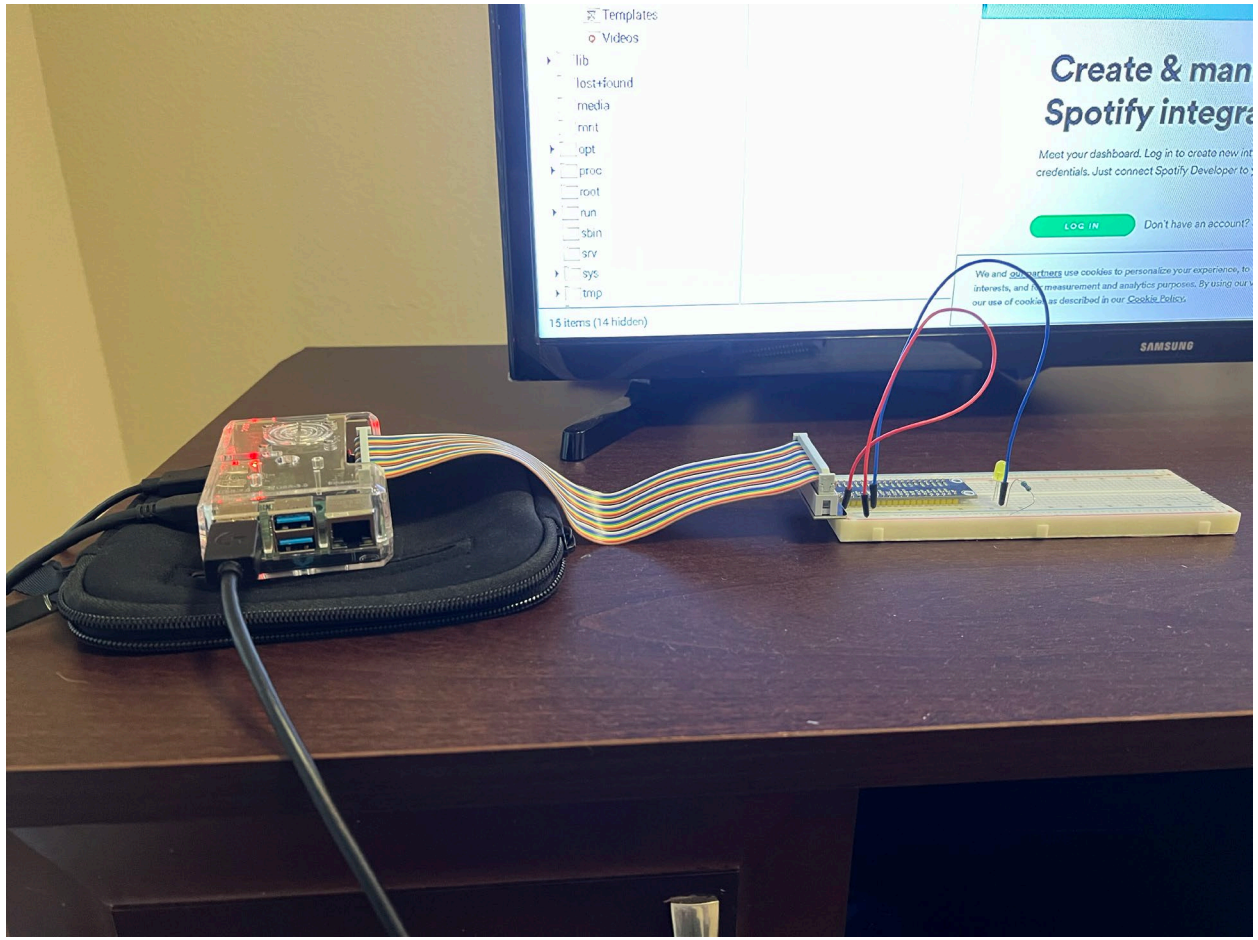
  It's easy to use, convenient, and provides everything we need.

```
SPOTIFY_GET_CURRENTLY_PLAYING_URL = 'https://api.spotify.com/v1/me/player/currently-playing'
SPOTIFY_GET_SONG_DETAILS_URL = 'https://api.spotify.com/v1/audio-analysis/'
```

```
"timestamp":1668665018526,
"context":"None",
"progress_ms":20364,
"item":{
  "album":{
    "album_type":"album",
    "artists":[
      {}
    ],
    "available_markets":[],
    "external_urls":{},
    "href":"https://api.spotify.com/v1/albums/0kBfgEilUFCMIQY5IOjG4t",
    "id":"0kBfgEilUFCMIQY5IOjG4t",
    "images":[],
    "name":"Slippery When Wet",
    "release_date":"1986-08-16",
    "release_date_precision":"day",
    "total_tracks":10,
    "type":"album",
    "uri":"spotify:album:0kBfgEilUFCMIQY5IOjG4t"
  },
  "artists":[],
  "available_markets":[],
  "disc_number":1,
  "duration_ms":249293,
  "explicit":false,
  "external_ids":{},
  "external_urls":{},
  "href":"https://api.spotify.com/v1/tracks/37ZJ0p5Jm13JPevGcx4SkF",
  "id":"37ZJ0p5Jm13JPevGcx4SkF",
  "is_local":false,
  "name":"Livin' On A Prayer",
  "popularity":84,
  "preview_url":"https://p.scdn.co/mp3-preview/fabd6cd060e5dcfdc6e48db3f4931643d6ef280c?cid=774b29d4f13844c495f206cafdad9c86",
  "track_number":3,
  "type":"track",
  "uri":"spotify:track:37ZJ0p5Jm13JPevGcx4SkF"
},
"currently_playing_type":"track",
"actions":{},
"is_playing":true
```

```
{
  "meta":{ },
  "track":{
    "num_samples":5406018,
    "duration":249.29333,
    "sample_md5":"",
    "offset_seconds":0,
    "window_seconds":0,
    "analysis_sample_rate":22050,
    "analysis_channels":1,
    "end_of_fade_in":5.94431,
    "start_of_fade_out":234.42867,
    "loudness":-9.757,
    "tempo":122.511,
    "tempo_confidence":0.797,
    "time_signature":4,
    "time_signature_confidence":1.0,
    "key":0,
    "key_confidence":0.631,
    "mode":1,
    "mode_confidence":0.595,
    "rhythm_version":1.0
  },
  "bars":[ ],
  "beats":[
    {
      "start":0.45227,
      "duration":0.49515,
      "confidence":0.122
    },
    {
      "start":0.94742,
      "duration":0.46612,
      "confidence":0.306
    },
    {
      "start":1.41354,
      "duration":0.45803,
      "confidence":0.209
    },
```

THE PROTOTYPE



CONCLUSION

Thank you for your time.