



UNIVERSITY OF NORTH CAROLINA
CHARLOTTE

ITIS-6177-051
System Integration

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Final Project
Azure AI Text to Speech

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1. Project Overview

This project demonstrates a simple implementation of the Azure Text-to-Speech service. It allows users to convert text into speech using a REST API and download the generated .mp3 file.

2. Features

- Converts user-provided text into audio using Azure AI Text-to-Speech.
 - Supports multiple voices and languages (default: en-US-JennyNeural).
 - Outputs audio in MP3 format with 16kHz quality.
 - Hosted on a publicly accessible DigitalOcean server.
 - Secure handling of API keys with environment variables.
 - Continuous server uptime using PM2.
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2. Prerequisites

- **Node.js** (v18 or above).
 - **npm** (Node Package Manager).
 - **Azure Subscription**: Ensure you have a valid Azure Speech API key and region.
 - **Postman**: For testing API endpoints.
 - **DigitalOcean Droplet**: To deploy the project.
 - **Git**: For version control.
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3. Installation Steps

1. Clone the repository:

```
git clone https://github.com/Tanvi09Garg/ITIS-final-project.git
```

2. Navigate to the project directory:

```
cd ITIS-final-project
```

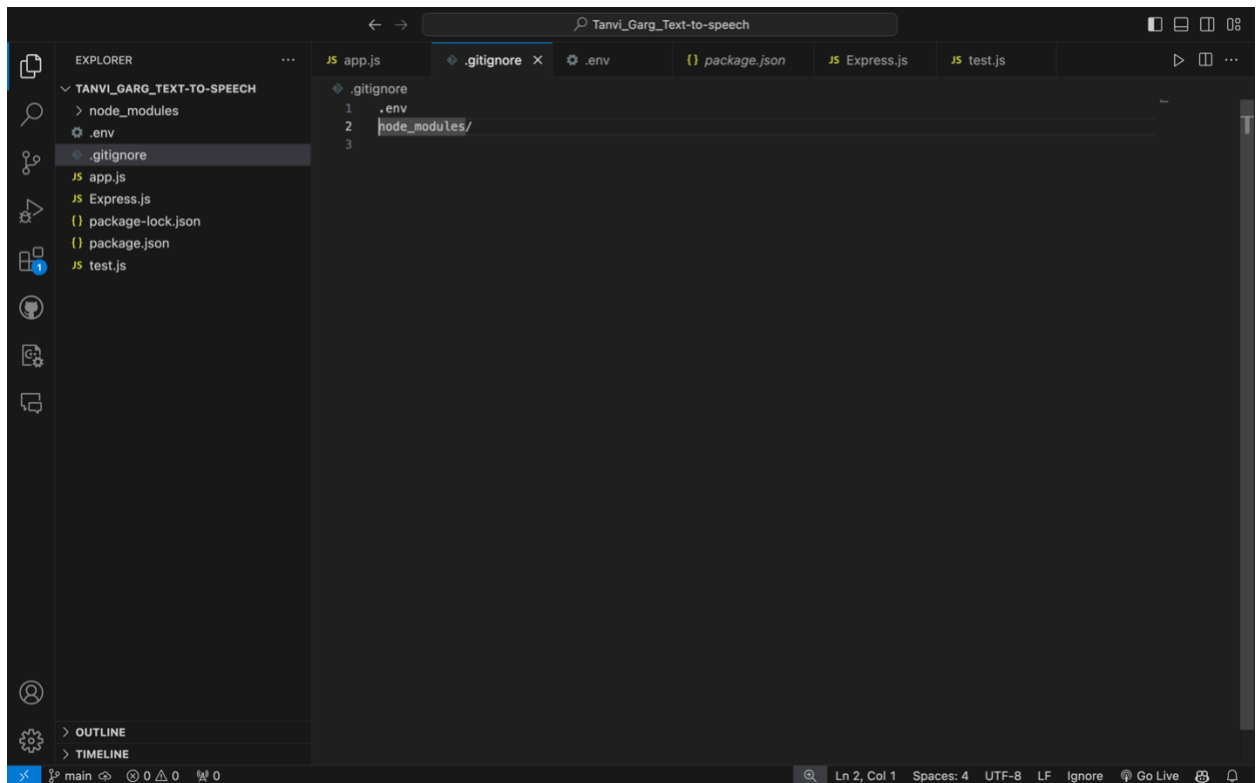
3. Install the dependencies:

```
npm install
```

4. Running the Project

1. Create a `.env` file with the following content:

```
SPEECH_KEY=your_azure_speech_key  
SPEECH_REGION=your_azure_speech_region
```



2. Start the server:

```
node app.js
```

3. The server will run on <http://localhost:3000>.



4. Testing the API Using Postman

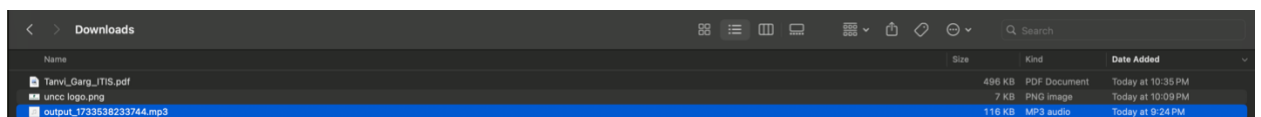
1. Open Postman and create a new **POST** request.
2. Use the following URL:

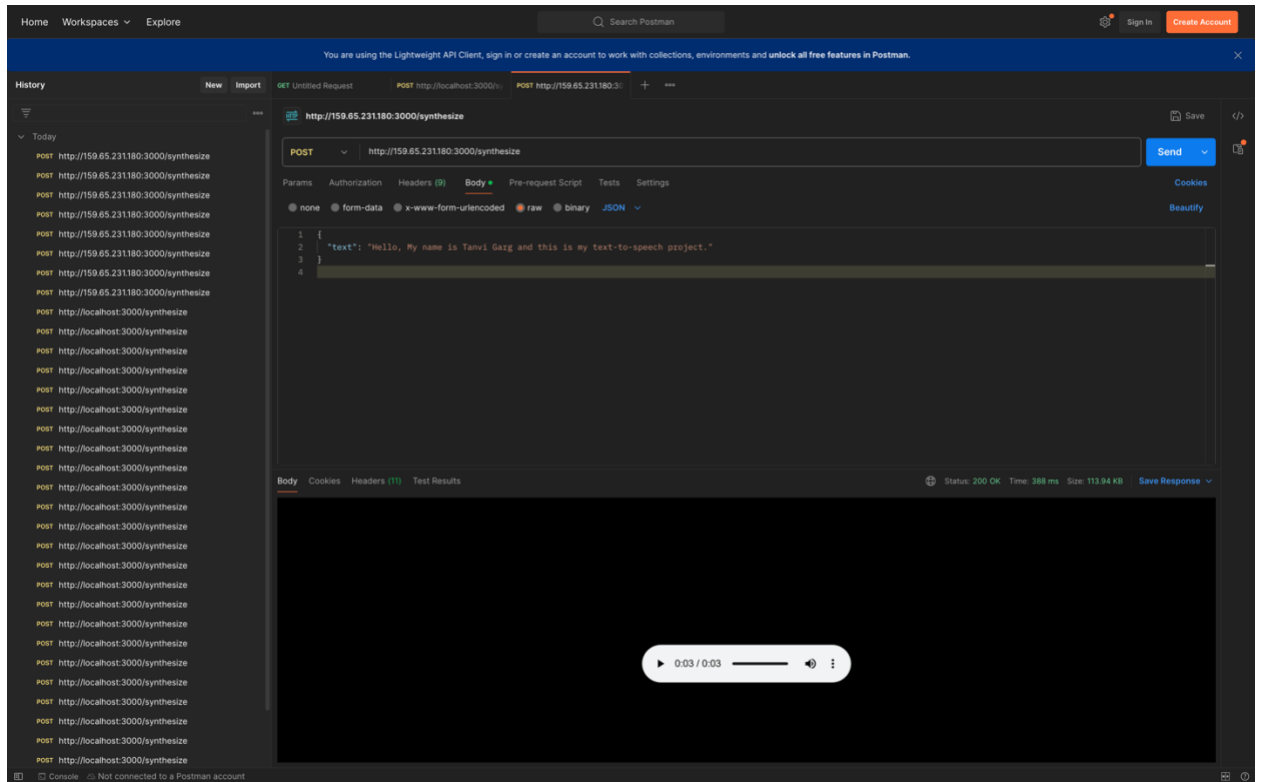
`http://159.65.231.180:3000/synthesize`

3. Add the request body in JSON format:

```
{
  "text": "Hello, my name is Tanvi Garg and this is my text-to-speech
Project."
}
```

4. Send the request.
5. If successful, you will be able to download the .mp3 file by clicking on Save Response.





5. Deployment on DigitalOcean

1. SSH into your DigitalOcean droplet:

```
ssh root@your-droplet-ip
```

2. Clone the project repository:

```
git clone https://github.com/Tanvi09Garg/ITIS-final-project.git
cd ITIS-final-project
```

3. Install Node.js and dependencies:

```
yum install -y nodejs
npm install
```

4. Start the server with PM2:

```
pm2 start app.js --name text-to-speech
pm2 save
pm2 startup
```

6. Error Handling

- Ensure the `.env` file contains valid Azure API credentials.
 - Verify that your DigitalOcean droplet allows external connections on port 3000.
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7. Additional Notes

- Ensure sensitive data like API keys are never pushed to GitHub.