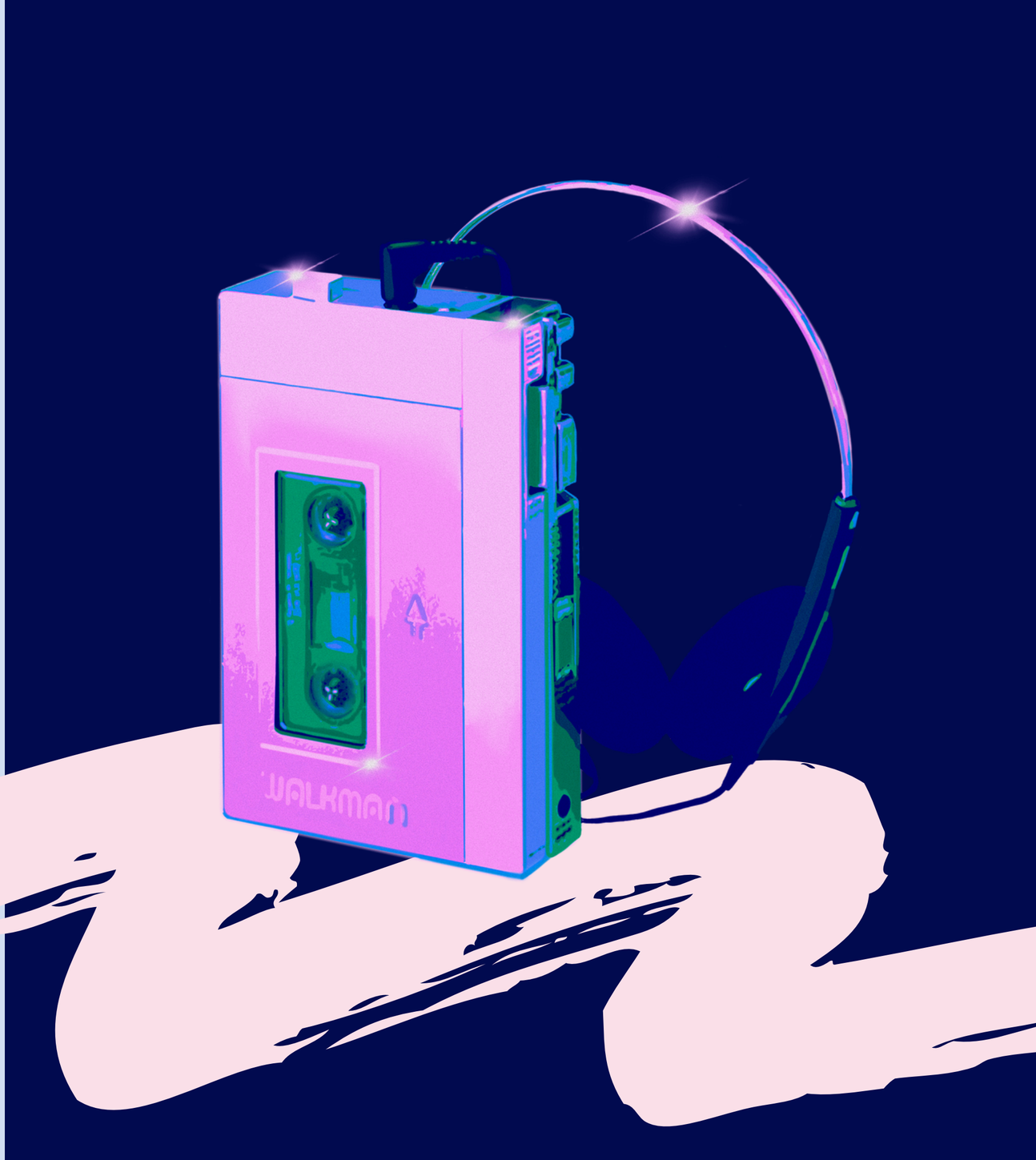
Project Idea Presentation

EUSL/TC/IS/2019/COM/49

Gesture-Based Music Player Control Using Computer Vision and Machine Learning



Introduction

- Traditional music players rely on buttons, touchscreens, or remotes for control.
- This project proposes a novel approach using hand gestures for a more natural and engaging experience.
- Imagine controlling your music playback by simply raising your hand and making a gesture!

Methodology

DATA COLLECTION

We'll gather a diverse dataset of hand gestures representing various music player functions (play, pause, skip, volume) and potentially hand sign letters for advanced functionalities like searching for songs.

HAND DETECTION

Computer vision techniques like Haar Cascades or MediaPipe models will be used to identify hands in real-time video feeds from the webcam.

Methodology

FEATURE EXTRACTION

Keypoint detection algorithms will extract crucial features from the detected hand, such as the location of fingertips and palm.

GESTURE RECOGNITION

Machine learning models (like Support Vector Machines or Random Forests) or deep learning models (Convolutional Neural Networks) will be trained to classify the hand gestures based on the extracted features.

PLAYER INTEGRATION

Recognized gestures will be mapped to specific music player commands using APIs provided by platforms like Spotify or local media players.

Key Functionalities

The Gesture-Controlled Music Player will offer various functionalities

Play/Pause

A simple gesture will initiate playback or pause the current song.

Next/Previous

Dedicated gestures will allow you to skip to the next song or go back to the previous one.

Volume Control

Raise or lower your hand to adjust the volume to your liking.

Key Functionalities

The system can be extended for advanced functionalities

Search by Hand Sign Letters

Spell out song titles using hand sign letters for a unique search method.

Add to Favorites

Assign a gesture to add the current song to your favorites list for quick access later.

Conclusion

Gesture-controlled music player offers a novel and intuitive music experience.

Hands-free control through computer vision and machine learning.

Increased accessibility for users with limited mobility.

Potential for further development and integration with different music platforms.

THANK YOU

UDARI ADHIKARAM