

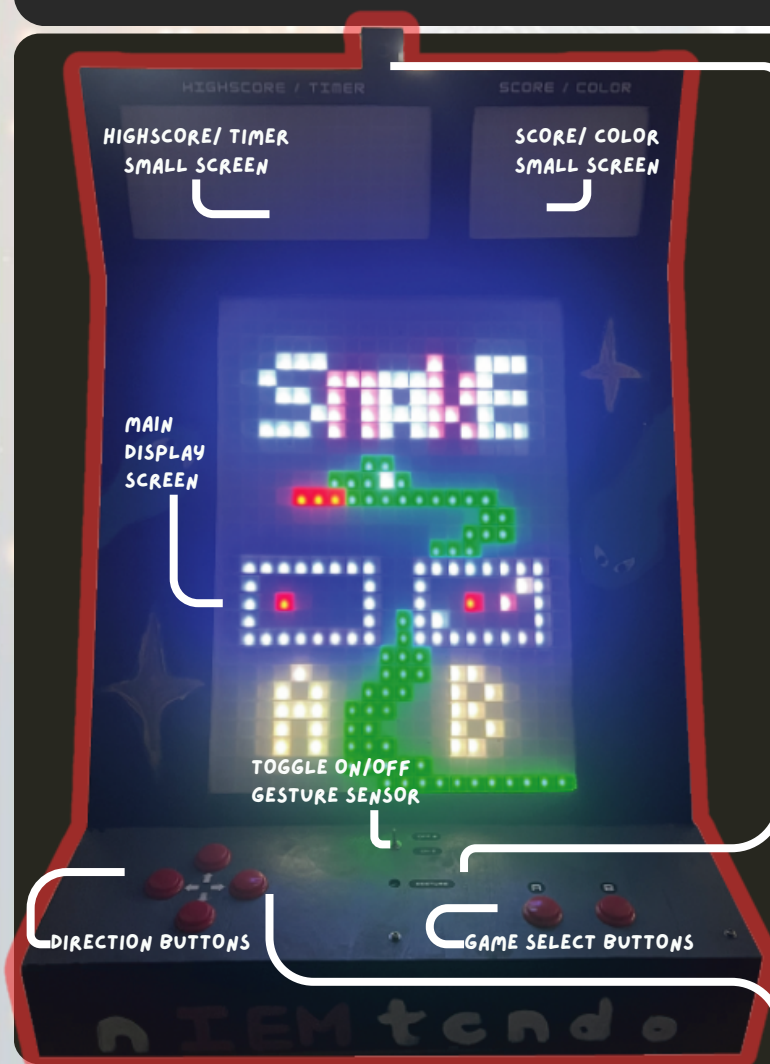
INFORMATION ENGINEERING AND MEDIA

NIEMTENDO

JOY FOR ALL

ABSTRACT

Introducing nIEMtendo, a retro arcade game with a modern twist that prioritizes an interactive and immersive experience through advanced gesture recognition technology. Inspired by innovations like the Wii, we seamlessly integrate game consoles with sensors to broaden the spectrum of gaming possibilities. nIEMtendo offers two distinctive game modes: the classic snake game, a nostalgic nod to gaming roots, and our unique rendition, infusing fresh perspectives into this beloved arcade classic. Our goal is to seamlessly blend retro charm with contemporary technology, delivering an engaging gaming experience that captures the simplicity of the past and the sophistication of the present.



COMPUTER VISION

- OpenCV and PI Camera Module 3 on Raspberry PI 4 detect hand motions.
- Accurate identification of joint coordinates enhances understanding.
- Superior computing power of Raspberry PI 4 enables advanced and responsive motion detection.

PAJ7620V2 GESTURE SENSOR

- Gesture sensor uses infrared light and a photodiode array to recognize nine gestures.
- Our project implements four gestures, leveraging advanced technology and recognition algorithms.
- Provides an intuitive, hands-free interface for electronic applications, enhancing touchless control scenarios.

BUTTONS

- Backbone of our arcade user interface translating commands into actions.
- Essential for player input
- Microswitches provide tactile feedback, ensuring precise and instant recognition.

CONCLUSION

nIEMtendo seamlessly merges controls for button traditionalists and gesture enthusiasts, delivering an immersive gaming experience. Proficiency in cutting-edge hardware, including WS2818B LED strips, PAJ7620U gesture sensor, Raspberry Pi camera module, and Arduino Mega 2560 CH340, ensures both visually stunning and intellectually engaging gameplay. Efficient resource management within budget positions nIEMtendo as a cost-effective and scalable solution, with future recommendations centered on expanding content and enhancing features. This solidifies nIEMtendo as a catalyst for the future of interactive gaming, education, and technological exploration.

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