Accessible Video Game Controller for One-Handed Individuals

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TEAM S24-24

Abstract

❑ Individuals with one hand, representing approximately 1 in 200 globally (WHO), encounter significant gaming challenges due to controllers designed for two-handed use. Existing one-handed controllers often lack optimization and portability, hindering competitive play. Our project integrates a gyroscope for precise aiming, akin to traditional controllers, while ensuring single-handed comfort. This innovation aims to level the playing field, providing one-handed individuals with a competitive edge in gaming.

Motivations and Objectives

➢ Motivations
- ❑ Help promote philanthropic efforts towards disabilities within the video gaming
- ❑ Create a new and innovative way to play games

➢ Objectives
- ❑ Create a comfortable controller that can fully utilize the standard input suite
- ❑ Take advantage of alternative aiming methods such as gyroscopes
- ❑ Have a product that can be used in a competitive setting

Project Challenges

- ❑ Programming and optimizing the gyroscope so that it can be used with a multitude of games with similar accuracy to that of a mouse or joystick
- ❑ Finding creative ways to manage comfortability when using both the gyroscope and the general controller buttons
- ❑ Accurately 3D printing outer shell casing to work well with our organized button configuration

Acknowledgement

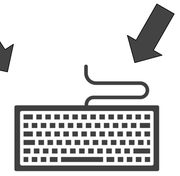
Special thanks to our advisor Professor Jorge Ortiz for not only motivating us through this entire process but pushing us to explore new ideas and ways of achieving our goal

System Design

Primary hand:
Uses controller to move and play

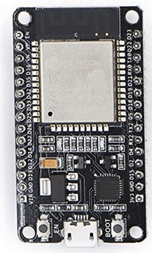
Analog Stick

Pushbuttons



Secondary limb:
Uses the Gyroscope control the camera

Gyroscope



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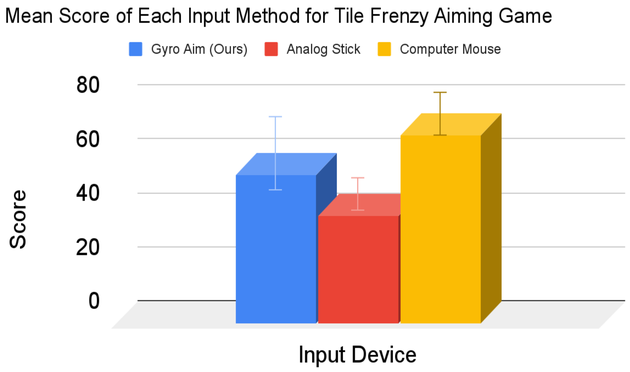
Results and Cost Analysis



Product	Cost
Accessible Gyro Controller(Ours)	$43
Xbox Adaptive Controller + Attachments	$100
One-handed PS4 Attachment	$132
Logitech G Extreme 3D Pro Joystick	$ 34.99

Project Impact

- ❑ Further improvement towards diversifying the gaming space
- ❑ Possible expansion towards gyro support within video games
- ❑ Influence towards bigger and brighter ideas that improve our current set up

References

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