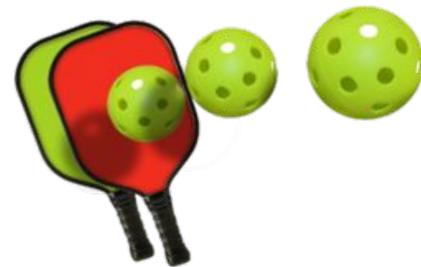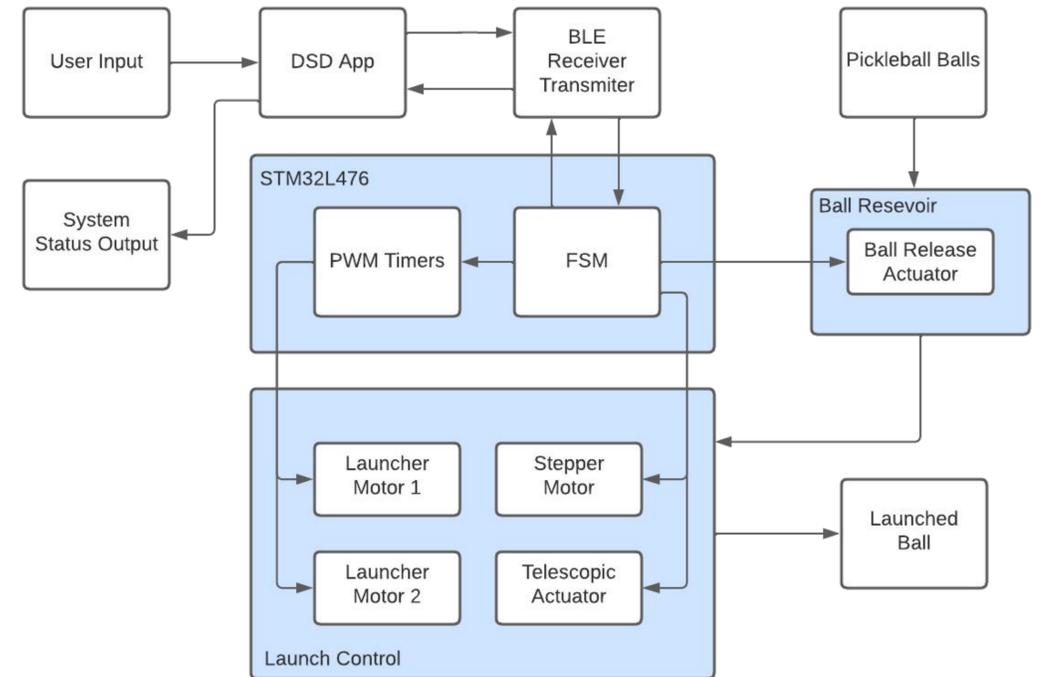# Pickleball Machine

Project

Pickleball is a sport that usually requires two or more players of similar skill level.

The Pickleball Machines Goals:

- Allow a single person to practice pickleball.

- Allow a player to practice against various types of returns.

- Increase a player's pickleball skill level.

- Control wirelessly from across the court.

System

Methods

- Bluetooth module uses UART protocol to communicate wirelessly with the user via mobile app.

- Pulse width modulated (PWM) signals from the microcontroller control each launcher motor for speed control.

- Telescopic actuator and stepper motor allow for control of vertical and horizontal launch angles.

- Linear actuator periodically retracts to feed balls into launcher mechanism.

- Custom built mechanical frame seamlessly integrates electronic hardware.

Conclusion

- The system design was successfully implemented both mechanically and in software.

- The system successfully launches pickleballs with varying launch characteristics.

- The mechanical design and implementation takes a lot more time and effort than we thought.

- The next phase of the project would be to better calibrate the hardware/software for a more consistent and authentic ball launch.

College of Engineering
UtahStateUniversity

Brandon Eldredge   brandoneld21@gmail.com
Tyler Crabtree   A02124906@usu.edu
Tyler Rose   trose16@icloud.com

Special Thanks To: Dr. Donald Cripps
                      Jolynne Berrett