Abstract
This project involves designing an Android app called RePlay that will help to increase the effectiveness of at-home treatments for physical therapy patients. We used Xamarin and MonoGame to build a full platform – the app is a game launcher that takes in measurements from a Bluetooth controller (used to capture patient movements) and sends signals to a Bluetooth receiver (which will stimulate the vagus nerve to increase therapy effectiveness).

Architecture
Android Applications
- We use the Xamarin framework to develop this app for Android.
- Xamarin and MonoGame were used for our launched games.
- Our app launches the MonoGame minigames and receives movement data from them.

Impact
We have developed a wrapper application to launch games designed to aid the recovery process of physical therapy patients.
- Therapists are able to prescribe exercises to patients and monitor patient activity.
- Patients are able to launch minigames to perform exercises on their own.
- Integration with FitMi Controllers and nerve stimulators allow for faster recovery.

Select App Views
- Therapist Page
- Games Page

Metrics & Results
- Developed an application to assist the recovery of physical therapy patients
- Created ability to make prescriptions and launch exercise minigames
- Designed a system for managing and recording data for use in therapy
- Requirements met in that core functionality of wrapper application was completed
- Two minigames were integrated with the app
- Framework in place to add additional games and application functionality