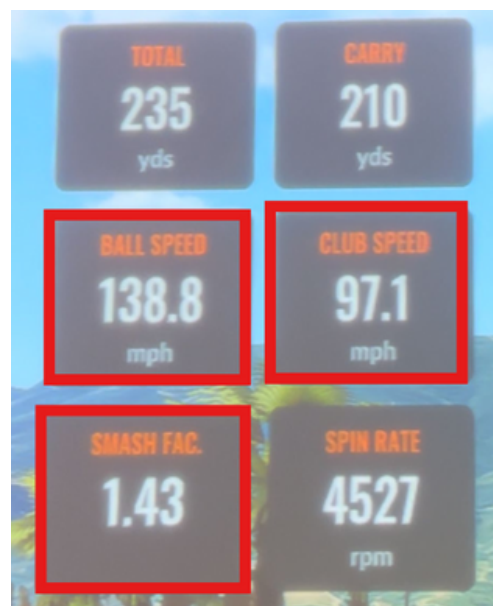
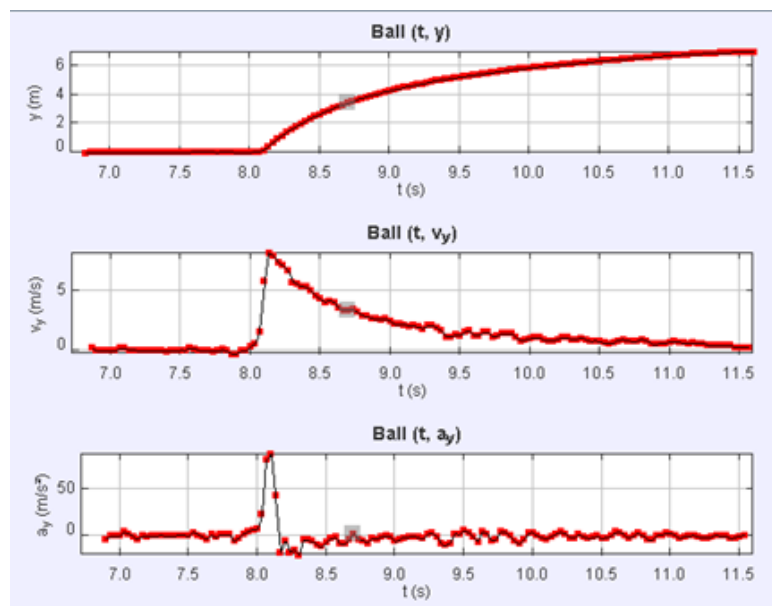


COMPLETED

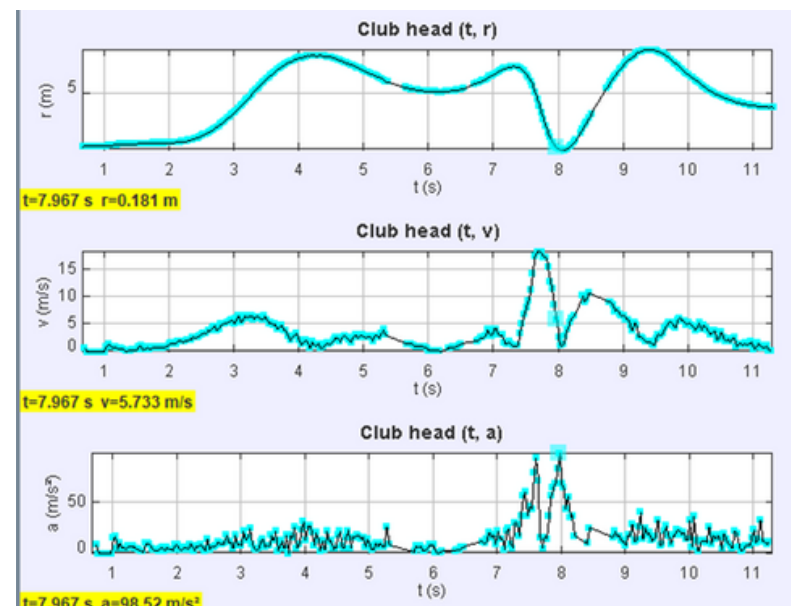
IMPACT ANALYSIS OF A GOLF SWING - FAIRFIELD UNIVERSITY



Control values



Experimental values for ball



Experimental values for club head

What?

- Analyze the **impact forces** and **kinematics** involved in a golf swing using Physics Tracker a free software.
- Obtain similar values to specialized systems which cost >\$20,000
- Use Srixon Zx5 4 iron and Titleist ProV1 ball, filmed using iPhone 14 Pro

How?

- Used **Physics Tracker**, to track ball and club head through video.
- Adjusted for logarithmic distance drop-off from camera,
- Adjust for data noise and convert values from graphs.

Results

- Obtained results almost identical to the specialized system, proving an inexpensive alternative is possible.
- Experimental values and **percent error**
 - Club head speed: 96.8 mph (**0.79%**)
 - Ball speed: 137.7 mph (**0.31%**)
 - Smash factor: 1.42 (**0.69%**)

ONGOING/CURRENT

COMPOSITE ACTIVE THUMB BRACE DESIGN - FAIRFIELD UNIVERSITY

What?

- Design a thumb brace that allows full range of motion while preventing backward hyperextension.
- Use knowledge gained from "**Mechanics of Composite Materials**" class to determine best composite structure to use.

How?

- 3D LiDAR scan** of hand imported into **SolidWorks** to create form.
- Form is 3D printed, ensuring accurate model for manufacturing
- ANSYS Workbench** analysis on motion and durability.

Results

- Still in progress, will be completed end of November

CFD ANALYSIS OF TO BE DETERMINED - FAIRFIELD UNIVERSITY

What?

- Decision on analysis has not been made yet.
- Apply knowledge and skills gained through "Computational Fluid Dynamics" as well as "Heat Transfer" courses to analyze a structure.
- Create full project report on findings with the goal to suggest design improvements,

How?

- Computational Fluid Dynamics analysis performed using **ANSYS Fluent**.
- Model design using **SolidWorks**.
- Create full project report on findings

Results

- Still in progress, will be completed end of November