NewtForce Integrated Pitching Lab

Integrating your systems and data to help you make real time decisions to improve performance

Overview

The NewtForce Integrated Pitching Lab (IPL) integrates pitching lab instrumentation and video systems and automates data collection to provide users a real time[1], pitch-by-pitch data package that coaches and trainers can use to optimize player performance where it matters most—on the mound. The NewtForce IPL integrates state-of-the-art instrumentation and video systems along with NewtForce Pitching Mound and NewtForce MoCap markerless motion capture, to provide pitch-by-pitch detailed analytics and graphical insights through a user-friendly interface. All data is securely stored in a customized user environment for

> *"The NewtForce Integrated Pitching Lab gives me all of the data I need in a real-time, easy-to-use dashboard. This has been critical in allowing me to action all data sources on a pitch-to-pitch basis."*
>
> *Wes Johnson*
> **University of Georgia Head Baseball Coach**

easy access. Key data includes ground force metrics from the NewtForce Pitching Mound, ball tracking and ballistics, high-speed pitch videos from compact lab cameras and Edgertronic systems, and motion capture analytics from NF MoCap.
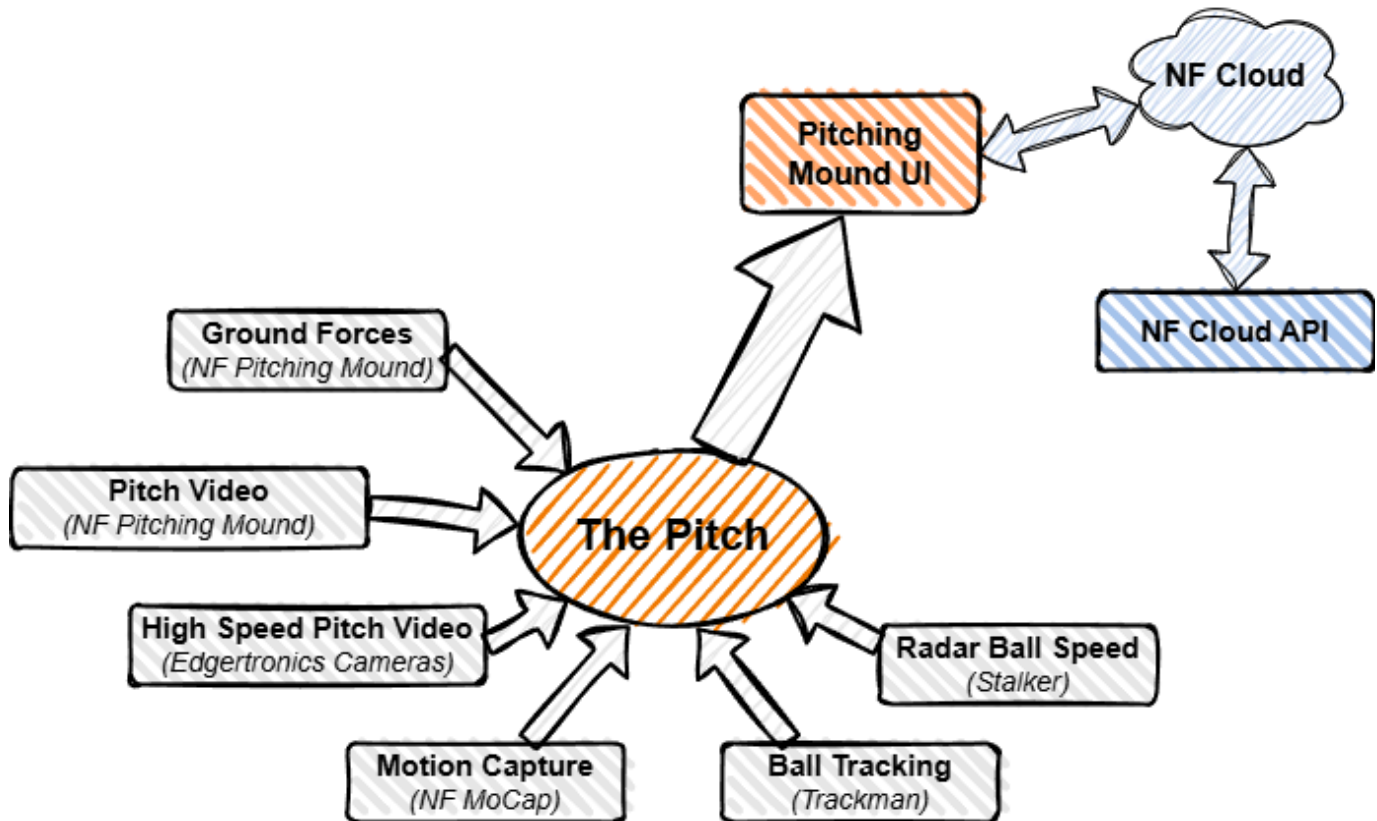
Solving Pitching Lab Problems

Building a world-class pitching lab comes with significant challenges. Which instrumentation systems should you use? How can you ensure these systems work seamlessly together? Who will set everything up and ensure it runs correctly? How can you collect, synchronize, and analyze data for each pitch in real time to make informed decisions? And how can you store and access this data for future evaluation? For many, tackling these challenges means training coaches and staff in complex systems or relying on a team of data experts juggling laptops and spreadsheets. The NewtForce Integrated Pitching Lab (IPL) eliminates these hurdles by providing all the tools you need in one streamlined solution.

Note 1: All pitch data and analytics are available within seconds of the pitch except high speed video capture from Edgertronics which is available about 30 seconds after each pitch.

Putting the Pieces Together

NF IPL brings all the pieces together[2] and synchronizes all the data collection and provides state of the art data analysis to provide players and coaching staff with pitching analytics and visualization tools between pitches during the pitching session.

NF IPL Components and Integration

Component Descriptions

1. **Ground Forces**

   The NF IPL is driven by the NewtForce Pitching Mound software which uses the NewtForce Pitching Mound to collect real time ground force data and provide analysis of lower half performance.

2. **Pitch Video**

   Pitch video is provided by the NewtForce Pitching Mound cameras and provides pitching video from two directions from any one of four camera sources.

Note 2: The figure shows our preferred and currently integrated tech stack. NewtForce offers custom integration services on an as needed basis. We can integrate your incoming signals regardless of their origin. Examples may include force plates, motion capture, or alternative cameras.

3. **High Speed Pitch Video**

High speed pitch video is provided by synchronized integration with Edgertronic high speed video capture. The video is available within approximately 30 seconds of each pitch, depending on the Edgertronic video settings. Video is reviewable within the Pitching Mound UI and is synchronized with NewtForce Pitching Mound ground forces.

4. **Motion Capture with Analytics**

Real time markerless motion capture is provided by NF MoCap. Motion data, along with all available analytics, are provided within seconds after each pitch. Player motion video is reviewable within the Pitching Mound UI.

5. **Ball Tracking**

Ball tracking uses pitch by pitch integration with Trackman B1 units. The data is collected automatically and all ball tracking analytics are available and stored by the Pitching Mound software.

6. **Radar Ball Speed**

Radar ball speed is collected through integration with Stalker radar guns. These can be used in place of Trackman or alongside Trackman when performing non-throwing drills (medicine balls, plyo balls, etc.).
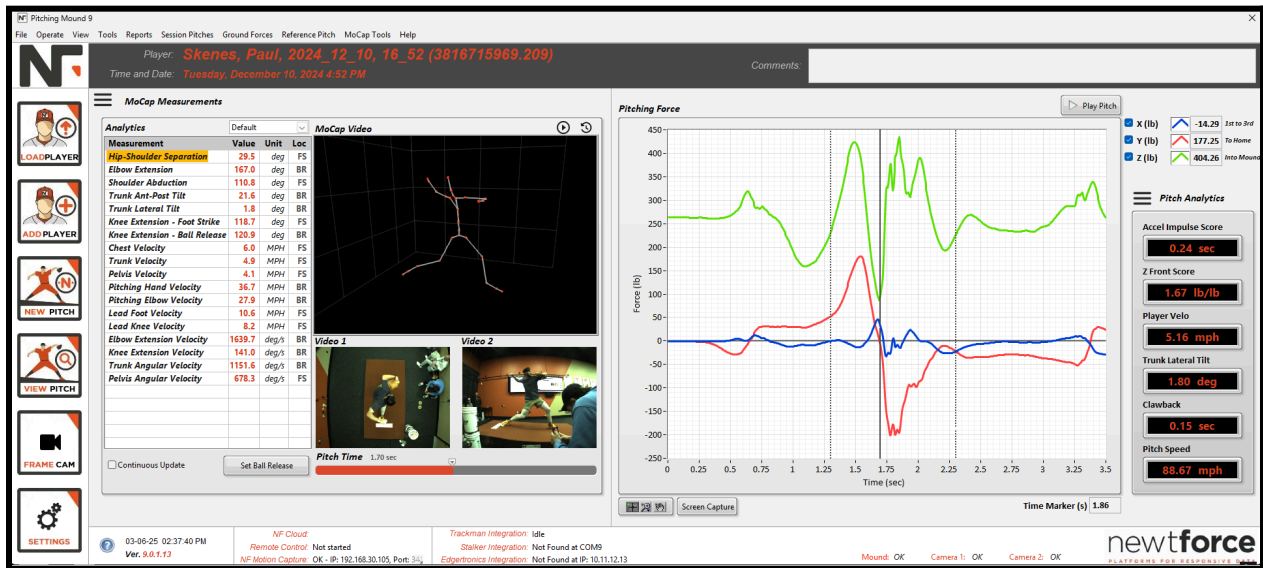
Remote Data Access

All data from the NF IPL is gathered and stored securely in a customer dedicated cloud storage solution which is administered and maintained by NewtForce. Data can be accessed using the NF Cloud API.

Installation and Training

NewtForce will procure and install the IPL in your facility. NewtForce will work with you to provide facilities engineering drawings and help to define installation requirements. Whether you are building a new lab or retrofitting existing facilities, NewtForce will work with you to make sure the installation and lab startup flows smoothly. After installation, NewtForce will train staff on IPL operation and can provide ongoing consulting to catalyze your player development.

NF IPL Software UI Examples

The NF IPL software is a user configurable interface for interacting with all IPL instrumentation. Data is viewed by switching between system tabs and assigning indicators to IPL analytics. The IPL software runs on a high performance mini-tower PC provided by NewtForce. UI examples are shown below.

Software UI: NF MoCap, ground forces, Trackman data, and ground force analytics

Software UI: Edgertronics video, ground forces, and analytics

NF IPL Installation Example

NF IPL Installation: Dual NF Pitching Mounds, Dual NF MoCap, cameras, etc.

(Photo credit: University of Georgia)