

CS486C – SENIOR CAPSTONE DESIGN IN COMPUTER SCIENCE

PROJECT TITLE

Olympic Sport Training Camp Management Portal

SPONSOR INFORMATION

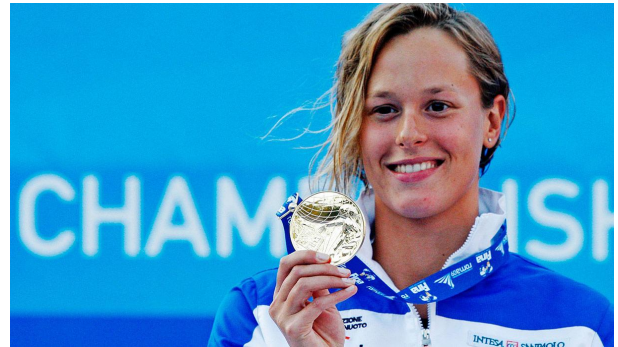


Turning Thin Air
Into Gold

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PROJECT OVERVIEW

HYPO2 is an internationally renowned sport management organization specializing in producing fully supported altitude training camps and high-performance programs for Olympic-level athletes and teams preparing for competition on the world's biggest sport stages. HYPO2 is a full-fledged member of the Association of Sports Performance Centers (ASPC) a collection of best-in-class training centers throughout the world and is the only entity in the United States (aside from the U.S. Olympic & Paralympic Committee's designated training center) to be accepted as a member. Partnering with numerous National Olympic Committees and National Sports Organizations, HYPO2 operates within a sphere of the most prestigious sports organizations in the world and focuses primarily on altitude training as a means of performance enhancement. And athletes who have successfully used altitude training in Flagstaff have gone on to log major wins in national and international competitions, including over 300 Olympic and Paralympic medals over the last 25 years.



Although altitude training as a means of performance enhancement is a given in the world of elite endurance sport, what is not a given is where these athletes will train, and what challenges their teams will face when training there. There are certain requirements a given altitude training center must have, and a multitude of complex, interactive components that have to be put into place and managed for each and every training camp in order for the athletes to be put into the best possible position to succeed. HYPO2 has put Flagstaff on the map of international sport by taking the reins of managing these components and promoting itself as a unique “one-stop shop,” allowing teams to have a single point of contact for their altitude training camp who centrally coordinates each and every logistical component of a given team's training camp. This includes the coordination of all facility access and scheduling, all high-performance services, and all corresponding logistical support services (room and board, transportation, etc.).

THE PROBLEM: MANAGING COMPLEX LOGISTICS PLANNING

HYPO2 relies on a hodgepodge of existing software solutions cobbled together to meet its needs in the management of training sites and training camps, e.g., Excel sheets, Google calendars, and plain old-fashioned paper documents. The current solutions are typically generic, i.e., not expressly designed and custom-tailored for the logistics management purpose for which they are being used: they do not communicate with one another, must be kept up-to-date and in-sync manually and, in general, lead to inefficiencies in management and poor resource allocation. HYPO2 – and the Olympic sport industry as a whole – is in need of a more powerful and proprietary software product to integrate and manage all the disparate elements that comprise elite-level training camps.

ENVISIONED PRODUCT: TRAINING FACILITY MANAGEMENT PORTAL

For this project, HYPO2 would like to develop a sophisticated web-based portal to integrate and manage all of the various logistical and service components of Olympic sport training camps. The portal would be configured and managed by HYPO2 staff, and would support access by athletes, coaches and support staff, allowing them to easily schedule, update and pay for their training camps/services in a secure and simple way. Given that the need for this kind of software permeates the Olympic sport industry, the development of such a tool could be used not only for HYPO2, but as something that HYPO2 could ultimately make available to other sports training centers, National Sports Organizations and National Olympic Committees.

Ideally, the envisioned software product should:

- Streamline HYPO2's intake procedures, booking of resources, calendaring, invoicing and billing processes by reducing the reliance on email and other like communication-oriented and scheduling software
- Improve the quality of services and their ease of use through HYPO2 by offering a software system allowing for automated steps, a shared services calendar and intelligent reporting for staff as well as self-service features for coaches and athletes.
- Reduce the administrative resources needed by staff members both on provider and client side to access, schedule, and be billed for training camp-related components (whether these be fundamental logistical components like room and board, or performance-related components like physiotherapy and testing).

STAGE ONE (MVP) FEATURES

Fundamental Capabilities

- Secure web application portal, using modern web2.0 web application framework
- Supports user accounts, profiles, and role-based permissions
- Ability for clients and staff to create and to manage their own profile via a dashboard
- Sound UX/UI design supporting the experience of all users

Calendar & Event Management Capabilities

- Client management of individual or team services and resources
- Staff management and allocation of all available services and resources, both in-house and outsourced.
- System for alerts and notifications (email, phone, text) for client and staff related to scheduling
- Capability for multiple views (i.e., individual or team, etc.) of the calendar for clients and staff
- Means of establishing in-app dialogue between clients and staff (so as to supplant email and text)

Reporting and Data export

- Ability to integrate/merge data into documents and document templates OR create documents from data
- Ability to export data to other formats (excel, pdf, word)
- Ability to generate summary reports of utilized services and resource allocation

Data Access & Security Capabilities

- Mechanism for migrating/importing data from current systems used to the new software system
- Ability for clients to securely upload sensitive documents and images (e.g., passports)
- Ability to be HIPAA compliant

STAGE TWO (FULL PRODUCT) FEATURES

Further Calendar & Event Management Capabilities

- 2-way integration between calendar entries and other commonly used calendars
- Ability to create a resource calendar (e.g., pool lane availability) to show open and full times

- Ability to trigger alerts based on defined conditions (e.g., pool time is double booked)

Enhanced Reporting and Data Export

- Ability to generate standard reports by date range for trend analysis, etc.
- Ability to integrate self-service into a survey tool (e.g., Survey Monkey)
- Ability to track inquiry process. Set alerts and reminders to notify administrators of the status of an inquiry based upon an inputted timeline (initial, status, follow-up, confirmed/denied)

Billing and Payment Integration

- Ability to generate a client or team invoice based on services and resources scheduled and delivered
- Ability for self-service users to view and to pay their bills/invoices in-app, incorporating multiple payment options (credit card, ACH, Venmo, EFTs, etc.)

Demographic Data & Tracking Capabilities

- Ability for users or HYPO2 staff to input demographic data for an individual or by team.
- Ability for clients to electronically sign intake forms, waivers or other documents.
- Ability to print or send electronically signed documents as needed.
- Ability to search for individuals by name, phone, country, team, dates, etc.

KNOWLEDGE, SKILLS & EXPERTISE REQUIREMENTS:

- Understanding of cloud-based computing; deploying/managing DB and compute instance on AWS
- Understanding of APIs and module-based software design.
- Basic understanding of modern web2.0 technologies for building interactive GUI interface
- Understanding of big data science: how studies work, how data is collected, large scale data management.

EQUIPMENT REQUIREMENTS:

- There should be no equipment or software required other than a development platform and software/tools freely available online.

SOFTWARE & OTHER DELIVERABLES:

- The web-based application and related software infrastructure as described above, deployed and tested successfully on a server platform of the client's choice.
- A comprehensively documented User Manual for understanding, configuring and operating the software.
- A strong as-built report detailing the design and implementation of the product in a complete, clear and professional manner. This document should provide a strong basis for future development of the product.
- Complete professionally-documented codebase, delivered both as a versioning repository (client to be made owner at project end); and as a physical archive on a USB drive
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