

KEEPING YOUR DATA HEALTHY

BioMass Health Management Systems

BioMass Health Management Systems is a contract engineering firm located in Utah that specializes in fitness technology. Their high-tech data collection kiosks are changing the way we approach and evaluate exercise by adding automated trainer communications and results tracking. This provides a new level of accountability in exercise regimens. This system has been implemented as part of the L.I.F.T.™ (Leadership in Fitness Training) America campaign to reduce obesity in children, and has also found a following in fitness clubs throughout the United States.



Visible Results

The BioMass Kiosks use bio-impedance technology to determine body composition and to measure both percent body fat (PBF) and body mass index (BMI). As part of the L.I.F.T. program, schools are required to submit this data, along with other fitness-related data collected in the school's physical education center over a three-year period. The data is evaluated in order to understand trends with the goal of using that knowledge to positively impact the health and wellness of future generations. At the individual participant level, this program facilitates the school's ability to individually tailor fitness goals and to monitor each student's progress toward achieving their goals.

One of the primary technologies BioMass needed in order to complete their design was a reliable way to collect and transfer fitness data. They determined the following necessary attributes for success of the design:

- ✓ "Off-the-shelf" – to minimize R&D costs and time-to-market
- ✓ Rugged – to withstand locker room environments and "children at play"
- ✓ Familiar form factor – to make it easy to use and shorten implementation
- ✓ Large memory "administrator" key – to provide easy access to all data for reporting purposes

The Solution is Key (or in this case, a Token)



Datakey Electronics was able to deliver a solution which surpassed all of their needs. The Tokens used for this application were Datakey Electronics' SSX Series Extended SlimLine™ Tokens.

They implemented a blue SSX16Kb Token for the users, and a red SSX256Kb Token for the administrators. Both provide non-volatile, serial SPI EEPROM memory.



Fully-Engineered

The SR4210 mating Receptacle offers a detent mechanism that gives users tactile confirmation when an inserted Token is physically engaged. The last piece implemented was Datakey Electronics' Unitroller™ Ilu serial memory reader/writer. The Unitroller Ilu allows for quick connection to host hardware via a standard USB port. It also supports remotely connecting this Receptacle via a ribbon cable. All products were fully-engineered and available—reducing R&D time and cost.



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A Successful Exercise

Each session begins at the kiosk where the user obtains a Token containing their identification and daily routine plan written in its non-volatile memory. The Token is taken to each workout station and is inserted into each station's receptacle. When inserted, the rugged and convenient Token is recognized, and the information in their exercise plan pertaining to just that station is displayed. During the workout, data on the actual routine performed is also recorded on the Datakey Electronics Token. At the end of the session, the Token is inserted again at the kiosk and the information is downloaded. The Token is then automatically erased and is ready to be used by the next person.

The fitness plan instructor uses the "administrator key" to download all the information from all the users onto one larger capacity Datakey Electronics Token. This allows the fitness instructor to upload the information to their computer, analyze what was done, and set each user's plan for the next workout. Also, having this information readily available in the PC provides an easy way to transfer the data, such as when schools submit the necessary data to L.I.F.T. America.

They Chose Datakey Electronics

"We started off building our own memory key that was bulky, had low memory capacity, and was rather fragile. Once we saw Datakey Electronics' rugged, standard product we were able to simplify our design, lower our development costs and the cost of the product," said Andrew Peterson, President, BioMass Health Management Systems. *"The larger memory capacity also allowed us to add a number of features to the Kiosks including being able to design a system that allows the information on the user keys to be downloaded to the instructor's larger memory key."*

By choosing Datakey Electronics, BioMass Health Management Systems was able to procure a proven product that could survive in a rugged exercise environment. By taking advantage of the characteristics of the Datakey Electronics off-the-shelf product, BioMass was able to greatly reduce R&D time and cost, reduce the cost of the final product, and bring the product to market much sooner. This versatile solution also offered other value-added features BioMass could not find with other solutions, such as a large capacity "administrator key" and color identification.

"We also love the form factor," added Mr. Peterson. *"The Token is small, compact, easy-to-use and available in various colors for instructor/user identification. It also lends itself to being disinfected often during its long lifetime, an important characteristic in a locker room environment."*



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