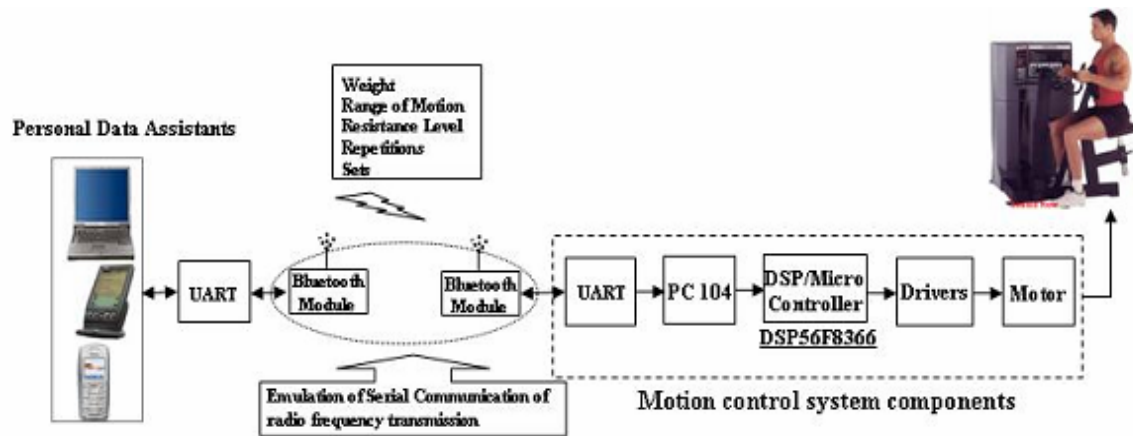


Adaptive Exercise Machine Control System for Persons with Disabilities

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The exercise equipment currently available in the market is mainly targeted for normal people that do not require assistance to access and configure. People with physical, cognitive or sensory impairment are the one who require exercise the most; however the equipment is not made easy to access. The major concerns for persons with certain disabilities to use the equipment are: 1) user has to remember parameter settings for a certain exercise program on a machine; 2) machine configuration requires to manually enter the list of parameter which may not be accessible for certain people with very limited capabilities 3) trained personnel assistance and supervision is always required to complete exercise program on these machines and 4) they lack finer adjustable control in terms of speed and force such that very weak disabled people can increment or decrement program settings. These are discouraging factors that keep away disabled people to improve their lives with regular and healthy exercise.

We develop computer control technologies by design changes, which include better user interfaces, mechanical design and better motor control to tune for low speed and force. Machines' ability to auto-configure its settings in a customized way using Bluetooth wireless technology make it more accessible than ever before. In addition to achievement of more accessibility, trained personnel attention is no longer required which attracts and encourages users to exercise regularly and for longer periods. Machines are made capable to collect, store and transfer data of progress on each individual to their personal storage devices. Hence, these improvements make exercise machines more usable and accessible for people of all ability levels.



Modified Control System of Seated Row Lifecircuit™ Machine