# Using an Accelerometer to Monitor Weight-Lifting Exercises

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A Gallup poll conducted in 2007 showed that only 15% of Americans regularly participated in weight-lifting exercises [1]. Furthermore, research indicates that 50% of participants in an exercise program tend to drop out within six months [2]. There currently exists a number of web and mobile applications that keep track of exercise routines; however, these existing apps rely on user self-reporting to obtain their data [3]. I propose the attachment of an accelerometer-equipped microprocessor to a dumbbell to perform real-time, in-situ monitoring of exercise routine adherance. A speaker may also be equipped to play back motivational recordings for behavioral reinforcement during the weight-lifting process. Data logged by the system will be published to a web application, which will provide a record of the exercise events as well as allow for social sharing with other users. The design process for this system will be user-centered and conducted in adherance with the principles of the contextual design paradigm.

## References

[1] Gallup Poll. 11-14 Nov. 2007. http://www.gallup.com/poll/103492/few-americans-meet-exercise-targets.aspx

[2] Dishman, R. K., Sallis, J. F., & Orenstein, D. R. "The Determinants of Physical Activity and Exercise." *Public Health Rep.* 1985 Mar-Apr; 100(2): 158-171.

[3] Alsever, J. "Apps to Help You Forget You're Exercising." *The Wall Street Journal.* 27 Jul. 2013: D3.