**System Design Review Follow-up Requirements**

Team 7 – EEG Alarm Clock

The review was held 9/25/09. All team members and selected BE faculty members were present.

The following item must be explicitly addressed in the next design review briefing document that will be due just before or after the winter holiday break.

1. Understand and be able to explain the differences among traditional, dry and active electrodes. Justify the need for dry and/or active electrodes. Are they worth the extra cost and complexity? Consider and address expected/required electrode life specification.
2. Understand and be able to explain the role of EEG in determination of sleep stage and the connection between sleep stage at awakening and sleep inertia. State the number of EEG channels to be monitored and intended electrode placement.
3. Consider the specific approach (algorithm) to be used to identify sleep stage and the specific approach (algorithm) to using this information to determine the optimal wakeup time.
4. Consider and address sampling and data transmission rate requirements.
5. Consider and address power requirements and battery life issues for the headband component of your device. Consider alternative approaches to data encoding for transmission to minimize power usage.
6. Consider and address RF safety concerns.
7. Consider and address electrode pressure and chemical (including electo-chemical) effects on the skin to assure electrodes can be worn overnight and repeatedly.
8. Investigate the safety and regulatory status of similar existing biofeedback and toy devices.
9. Obtain (or create through simulation) a robust collection of EEG signals for testing your device.

Signatures (Indicating that students understand and will address issues raised and that all major faculty concerns are listed):

Issac Reifschneider Dr. C. Tritt

Team PM Class Chief Engineer