REM alarm clock

Abstract

It has been shown that there are two different kinds of sleeps that are REM (Rapid Eye Movement) sleep and non-REM sleep, respectively. People feel more comfortable when they could wake up in the REM sleep than in non-REM sleep. So our idea is to identify this REM sleep with help of heart rate and wake him up at the end of this cycle. Studies show that heart rate will give results accurate upto 65%.

Theory of implementation

We found there is correlation between REM phase and the heartbeat of the person, we plan to monitor the heart rate of the person such that we find when the REM phase is over and then start the alarm.

Heart rate monitoring can be done very cheaply using IR sensor receiver pairs. We will also try to implement the recharging module for the whole system.

Implementation steps

1) We monitor heart rate constantly using basic electronic circuit.

2) We have a MUC based alarm clock, which is constantly getting the heart rate feed.

3) We can monitor when we want to wake up the person whose constraints are set by the time interval he wants to wake up in and when his REM gets over.

4)The whole assembly will be designed in a proper manner, and will get this done using batteries.

Timeline

Week1: Implementing heart rate counter and experiment on its correlation with REM sleep.

Week2: MUC based alarm clock ready.

Week3: Interface the both plus peripherals.

Week4: Design the circuit board and the front end of the product.

Week5: Aesthetics and feature implementation.

Week6: Buffer week

Components Required:

MUC,LCD,speakers and basic electronic components.

Cost Estimate

Not more than 2k.

Salient Features

1) Grumpiness free morning, as the alarm didn't disturb your REM.

2) Alarm effectiveness will increase.

3) Cheap, robust and portable.