A mobile app connecting user physical activity and wifi-enabled smart thermostat

**Background**

Lack of physical activities is an important healthcare concern. How do we motivate people to move more? Research shows that people spend more than 90% of their time indoors. This project aims to tap into the Internet of Things framework, specifically the smart thermostat, to encourage more physical activities.

We propose a mobile app that uses physical activity data (from smartphone) to control the smart thermostat. For example, if a user is sedentary for a certain time period X (e.g. 60 minutes), the app will then communicate with the thermostat to adjust the indoor thermal condition. It may adjust the thermostat either up (e.g. up to 80 F in summer) or down (e.g. down to 65 F in the winter), so that the indoor environment becomes less comfortable for the user. After the user is active for a certain period of time, or Y steps (e.g., 500 steps) have been achieved, the app will adjust the thermostat back to the original, more comfortable temperature.

Our design will ensure that temperature adjustments via the mobile app cannot be easily overridden by the user. We will design a "count down" feature for the app such that the user has to wait Z minutes to adjust the temperature back. Z is a design variable and will be fixed initially as 5 minutes in the pilot study (see description below). The rationale for fixing Z at 5 minutes is that a typical HVAC system takes between 5 to 10 minutes to cool down or warm up an indoor space.

X, Y and Z can be adapted to each individual user.

**Project scope**

The project deliverable is a mobile app that connects the smart thermostat and user physical activity measured by the smartphone. All material costs (e.g., smart thermostat) will be covered by the sponsor.
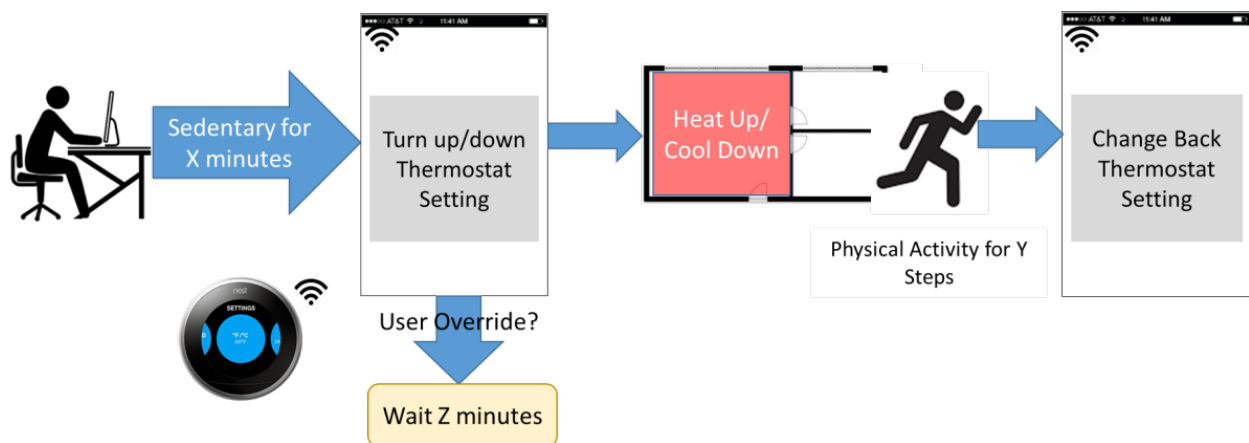


**Contact**

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 Note: both iOS and Android are okay