Project abstract

Sleep is an essential physiological process in human life activities. According to the statistics, many people are suffering from sleeping problems. For over one decade, much research on sleeping monitoring and analyzing system have been done. Since medically limited, the monitoring system has not domestically enabled at present. Also, the wearable devices available on markets are inconvenient, requiring users wearing them during the whole night. For other devices, they can't provide the overall analysis, due to their focus on the single aspect, i.e., breath monitoring. Therefore, we want to design the sleep monitoring and analyzing system refer to Pittsburgh sleep quality index (PSQI) model to find the most influential factor of our sleep and give corresponding advice to improve sleep quality. Our device collects environmental data through several sensors (including temperature, light, and noise). Next, we implement PSQI model to evaluate the sleep quality, finding the main factor by using Bayesian classification and decision-tree based algorithm. Our design is only a footstone, with the accelerating development of Internet of things (IoT), we believe our system will be able to connect with smart-home and automatically provide a more comfortable sleep environment.