Sleep Tight

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Nocturnal hypoglycemia has claimed thousands of type 1 diabetics lives over the years. In a population of 100,000 people with diabetes 20-60 people (6%) die from nocturnal hyper- or hypoglycemia. Medical Devices have been developed to track well being of those who are healthy; but people who have diabetes have no specific trackers to use to follow their sleeping patterns when they are unconscious due to sudden decrease in blood sugar level. I hypothesized that creating a device that alerts caregiver when patient is undergoing nocturnal hypoglycemia can benefit both the caregiver and the patient. The Medical device I designed in this project uses several sensors and trackers to interpret daily data of a diabetic in real time and informs caregiver if there are any fluctuations in body temperature and heart rate. It also alerts caregiver if the patient's motionless exceeds usual time period and excess sweating is observed. Java programming has helped to program the sensors and trackers in the device. The device uses an arduino platform; pulse rate sensor; motion sensor; pedometer; sweat sensor and thermometer.

Awards Won:

International Council on Systems Engineering - INCOSE: First Award of $1,000

International Council on Systems Engineering - INCOSE: First Award of $3,000