Smart Baby Caring System (SS7a-14)

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The concept of this project is making use of the behavior of newborn babies. The project is divided into two parts: the infant’s device and the user’s device. The motion sensors are installed in the infant’s device to detect the motion of the infant. When the infant is wake, the motion of the infant will trigger the sensors and it will detect the data of the motion and send the data to the Arduino board (1) that is installed in the infant’s device. The Arduino board (1) sends the signal to the another Arduino board (2) that installed in the living room or master room. When the receiving board (2) receives the signal, it will notify the parents or babysitter.

The sudden infant death syndrome (SIDS) is one of the causes of death of infants. This project is determined to reduce the possibility of SIDS. The project can detect the abnormality of babies and determine the temperature. If the infant’s body is abnormal, this system will send the signal to alert the parents or babysitter.

The objectives of this project is to create an application that can help users take care of newborn babies. The services of this project are not for normal users only, but also for hearing disabilities. Furthermore, the purpose of this project is to minimize the possibility of SIDS. Also, this project can detect the abnormality of the infant’s body and contact the user if the ambient temperature is not appropriate.

In the Preliminary testing phase, the first subject to test is the Arduino Uno functionality. The method that testing is to connect it to the power supply and write a simple program to test the input and output whether it is functioning or not. After testing the Arduino Uno board, the functionality of Bluetooth connects module is tested. The testing procedure is to write a program with Arduino software. And try to send a simple signal from the master Arduino (1) to the slave Arduino (3). And the slave Arduino (3) is connected with the LED light as the output to test whether the slave Arduino (3) received the signal or not. And that, the testing is the motion sensors. The testing is to connect the motion sensor with the Arduino and LED. When then the motion sensor is functioning, the LED will on. The next subject to test is the alarm system. Two components included in this system: the alert alarm and the LED. To test these components, the source voltage is applied to these components to check if they work. The testing will connect the microphone and thermal sensor with the Arduino board and write a simple program. The program will show the result when any change of ambient like sound and temperature is obtained. The LED will light up well to record the change. The same testing will be conducted by PIR module system.

At the final stage of testing, the whole project including the hardware and software. The first feature to test is the home automation. To test this feature, the simulation of infant’s activity is replaced by human motion, sound and temperature. The next feature to test is the smart home. Different types of android devices are considered as the testing object of the app. It works like a smart home with a user interface. The last feature is the accessibility. The trial of the user device is working functionally. The hearing disabilities will notice the alarm by notice the flashing LED light.