Fitness Band

Health Band is an innovative solution for detecting and monitoring a person health parameter like pulse rate and body temperature as well as it act like a fitness device that counts steps covered measures the distance travelled as well as monitor the calories burned during the process. Health Band is a Smartphone synced mobile health monitoring bracelet capable of reading a human's vital signs (pulse rate and body-temperature). Health Band is an Arduino Wearable Project. The important thing of Health band is they are connected with mobile devices by Bluetooth and track the parameters of the person. Health Band that is implemented by Arduino takes data from heartbeat sensor, temperature sensor, Accelero-gyro sensor and process the data into useful parameters and sends the data to the smart phone through Bluetooth technology supported by an android application on mobile side.

DAY 1:

SESSION 1:

- Introduction to basic of Embedded System
- Introduction & Explanation of Microcontrollers
- Explanation of AVR
- ATMega328
- Microcontroller Explanation of Arduino Board & Programming

SESSION 2:

- Basic Arduino Based programs for interfacing I/O Devices Interfacing
- LED and Programming the arduino to generate different LED patterns
- Introduction to Input Devices & Sensors
- Interfacing and Programming of HeartBeat Sensors & Temperature Sensor

SESSION 3:

- Interfacing of MPU6050 Accelero-Gyro Sensor
- Explanation of program for recording reading from MPU6050
- Sensor Explanation of concept of Serial Communication
- Understanding Software Serial Programming
- Interfacing Bluetooth and Sending and Receiving data from Bluetooth Explanation of the HealthBand
- Programming and Complete Assembly

SESSION 4:

- Working with Android Application making Basic App.
- Testing of HealthBand with Android Application.
- Doubt Solving & Questionnaires
- Workshop Based Challenges for Students

Kit Content: Take away kit(1 in a team of 4)

ARDUINO CIRCUIT BOARD:

- Micro Controller - ATMEL
- ATmega 328
- Operating Voltage - 5V
- Input Voltage 6v-20v
- Digital I/O pins - 14 out of which 6 provide PWM
- Analog Input Pins - 6
- DC Current per I/O pin - 40mA.
- Flash Memory - 32KB
- SRAM - 1KB
- EEPROM - 512Bytes
- Clock Speed 16 MHz
- USB-UART converter
- Proper Indicator LED's
- USB/ EXT input voltage
- 5V output supply pins - 3
- 3.3 V output supply pins - 1
    - Heart Beat Sensor
    - Temperature Sensor
    - Bluetooth Module
    - USB Cable
    - Connecting Wires
    - Battery
    - Battery Connectors
    - Flexi Acrylic Band
    - Screw Packet
    - Screwdriver