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Design & Implementation of a Health Improver Machine

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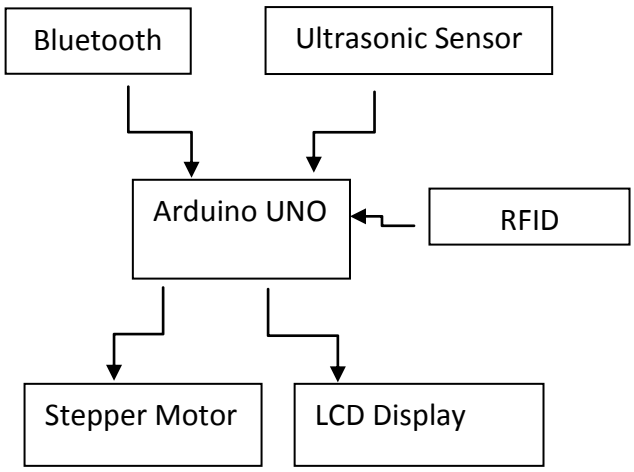
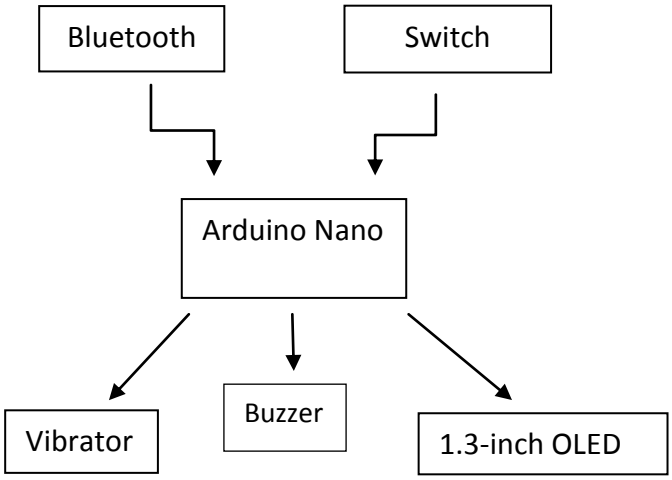
Abstract – The health problems of greatest significance today are the chronic diseases. The extent of chronic diseases, various disabling conditions, and the economic burden that they impose have been thoroughly documented. Health education and health educators will be expected to contribute to the reduction of the negative impact of such major health problems as heart disease, cancer, dental disease, mental illness and other neurological disturbances, obesity, accidents, and the adjustments necessary to a productive old age.

1.Introduction - In today's era, especially in the young generation, the children have a hectic schedule and are academically pressurized due to which they tend to fall ill but forget to take medicines on time, which increases the gravity of the situation. Also, the elderly people forget to take their routine medicines and after which their health problem worsens, due to which their family members have to take holidays from their work/job. There are e-pill dispensers available to help and cure people but are not very effective and cost an arm and a leg. Our project comprises solution of all the stated problems.

Block Diagram for Medicine Dispenser



Block Diagram for Smart Band



2. Problems in Focus

1. People tend to forget to take their medicines on time

2. Health problems increase due to not taken regular medicines

3. People often have to take holiday from their work/job if their family members are facing some health issue

4. There is no portable health machine which can help during emergency health problems like cardiac arrest.

5. Even though e-pill dispensers are available, they are too expensive

6. Alzheimer patients often forget to take medicines and often forget their home and tend to get lost

3. Proposed solution

1. In our project, we provide a smart band and a medicine dispenser and a health monitoring app, these things come with a medicine reminder system.

2. Our project has a disease scanner which can detect health problems and prescribe the right amount of medicine in the right time in the right dose.

3. The app provided contains all the latest information about the patient like blood pressure, body temperature and so on,

so the near & dear ones can access this information anywhere.

4. This machine is portable and can be carried anywhere and has an emergency protocol system which calls the nearest ambulance if detects unusual change in health parameters like chances of cardiac arrest

5. Compared to other health companies who offer health products cost a lot around 15000 to 20000 rupees, but my project up to the maximum budget costs 8000 rupees.

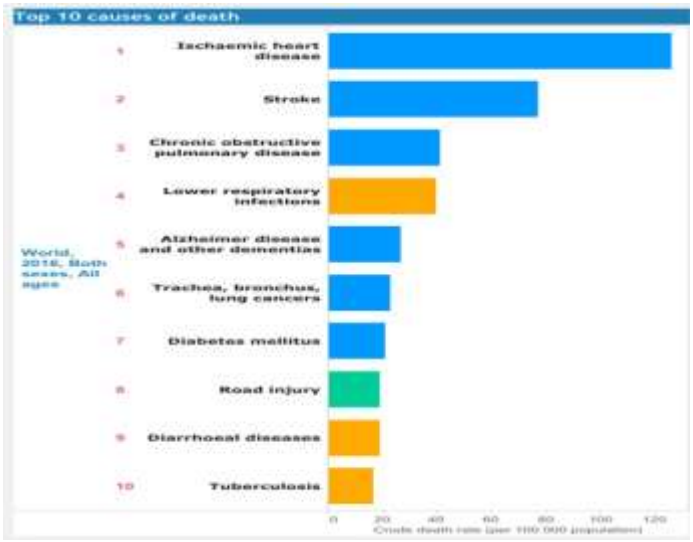
6. The Smart Band comprises of GPS which can also upload their current location to the app

3. ***APPLICATION***

- Useful
  in detecting diseases or health issues
- Can prescribe the right amount of medicine in right time in the right dose.
- Has AI incorporated in the medicine dispenser and Smart Band.

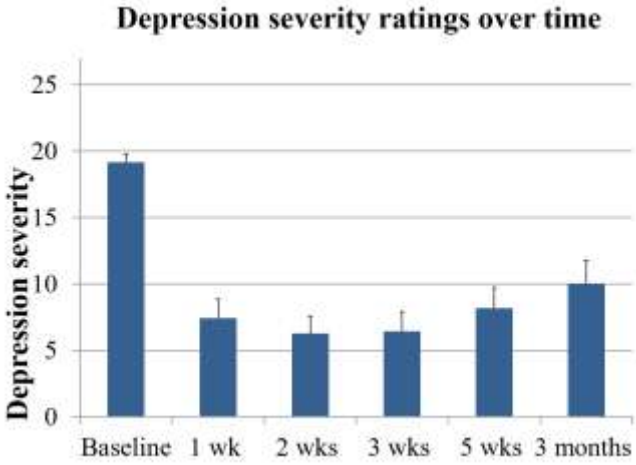
Statistics

Report by WHO

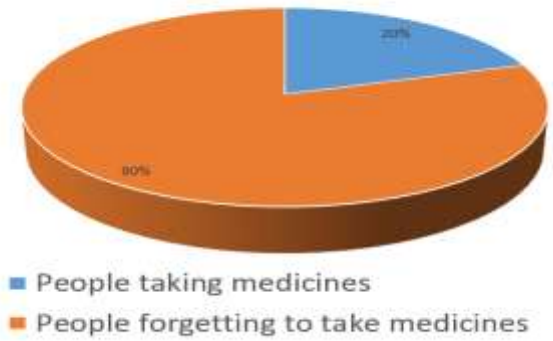


Comparison with the prices of medicine dispensers

Maya	$39.99 per month	• Remote access to data • maintains for a weeks medicines • Compartment flashes but patient need to take medicine himself. • 1 medicine per day
Stithi	₹5000+ 100/month	• 2 medicines a day • Remote monitoring • 3 weeks storage • Alerts through phone beeps • Reminder app
E-pill MedSmart	$549.95	• 20 pills • Buzzer and light notification • 2 keys included • No remote access • No emergency management
Pillo	1- ₹34,400 2- ₹50,000	• Single reminder • Machine beeping reminder • No remote access

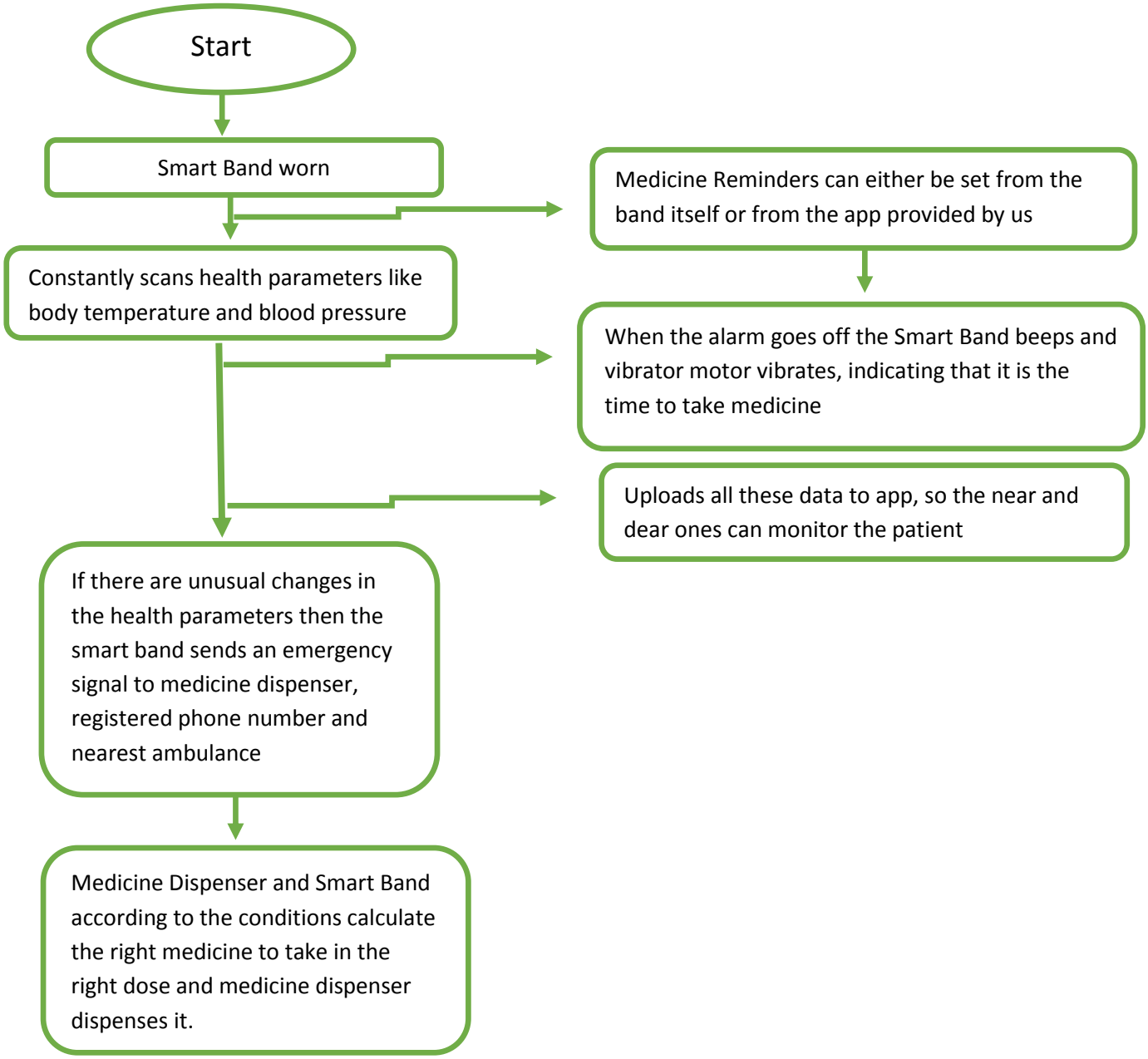


These Statistics support the need of our project which is helpful in reminding people to take medicines, help them to cure themselves, help Alzheimer and depression patients.



Overview of the app

*HERE, THERE IS A FLOWCHART THAT IS A STEP BY STEP PROCEDURE TO PROPERLY AND SYSTEMATICALLY FORM A PROGRAM AND SOLVE THE PROBLEM.**2.1. FLOWCHART***



4. Explanation

Arduino UNO

The Arduino Uno is a microcontroller board based on the ATmega328. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with an AC-to-DC adapter or battery to get started. Instead, it features the Atmega8U2 programmed as a USB-to-serial converter.

1.3 Inch OLED Display

I2C is a serial communication protocol. It provides the good support to the slow devices, for example, EEPROM, ADC, and RTC etc. I2c are not only used with the single board but also used with the other external components which have connected with boards through the cables.I2C is basically a two-wire communication protocol. It uses only two wire for the communication. In which one wire is used for the data (SDA) and other wire is used for the clock (SCL).

Ultrasonic Sensor

Ultrasonic transducers or ultrasonic sensors are a type of acoustic sensor divided into three broad categories: transmitters, receivers and transceivers. Transmitters convert electrical signals into ultrasound, receivers convert ultrasound into electrical signals, and transceivers can both transmit and receive ultrasound. In a similar way to radar and sonar, ultrasonic transducers are used in systems which evaluate targets by interpreting the reflected signals.

Bluetooth

Bluetooth technology is a short-range wireless communications technology to replace the cables connecting electronic devices, allowing a person to have a phone conversation via a headset, use a wireless mouse and synchronize information from a mobile phone to a PC, all using the same core system.

Radio-frequency identification uses electromagnetic fields to automatically identify and track tags attached to objects. The tags contain electronically stored information. Passive tags collect energy from a nearby RFID reader's interrogating radio waves. Active tags have a local power source and may operate hundreds of meters from the RFID reader.

Vibrator Motor

These days miniature **vibrating** motors are used in a wide range of products like tools, scanners, medical instruments, GPS, and control sticks. **Vibrator** motors are also the main actuators for haptic feedback which is an expensive way to increase a product's value, and differentiate it from competition.

Buzzer

A buzzer or beeper is an audio signalling device, which may be mechanical, electromechanical, or piezoelectric. Typical uses of buzzers and beepers include alarm devices, timers, and confirmation of user input such as a mouse click or keystroke.

5. CONCLUSIONS

This system is very effective for improving people's health and ensuring them to take the medicines in the right dose and also helps patients like depression patients and Alzheimer patients.

6. References

a. **KidsHealth**
b. **Vital Record**