DIGITAL BLOOD PRESSURE MONITOR

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Introduction

- Oscillometric method is used.
- Senses the pressure from cuff.
- Displays the systolic and diastolic pressures.
- Saves up to 128 previous readings.
Existing Systems

• Analog sphygmomanometer.

• Needs trained persons.

• Human error is more.
Why digital BP monitor?

- Replaces the stethoscope and mercury level system.
- Reduce human error.
- Can be used at home.
- Product is portable.
Description

- MPX5050 senses the pressure and give corresponding dc value.
- The analog signal is converted to digital value by the Microcontroller.
- The pulse due to blood flow will be present along with the sensor output.
- A dual stage band pass filter separates the pulses and it is converted to digital signal.
Based on the pulse, Microcontroller displays systolic and diastolic pressures in the LCD display.

The measured pressure values are saved in the EEPROM memory of PIC16F877.

Pumping of air in to the cuff and releasing it can be made automatic by mechanically interfacing the dc motor.
1. Transducer

- Gauge type sensor (MPX5050) is used.
- Piezoresistive type.
- Output voltage is 0-4.7Vdc
2. Filter section

- Dual stage Band pass filter.
- Bandwidth 0.3 to 6 Hz.
- Gain of 399.
- AC coupling stage is used.
3. MICROCONTROLLER

- PIC16F877 is used.
- Analog data is converted into digital form.
- Corresponding 10-bit digital number.
- Programmed by using “Mikro C for PIC” compiler.
4. POWER SUPPLY

• 12V and 5V supplies.

• 230V, 12V step down transformer.

• Bridge rectifier.

• Regulator.
ADVANTAGES

- Duration of measurement
- Safety in Design
- Usability
- Memory
CONCLUSION

• Semi automatic BP monitor.
• Can be used by ordinary people.
• Display in common unit.
Future works

• Mechanical coupling of motor.

• Interfacing with a communication system.
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