

Tutorial 8

Automatic blood pressure measurement system

1

Oscillatory method for detecting blood pressure

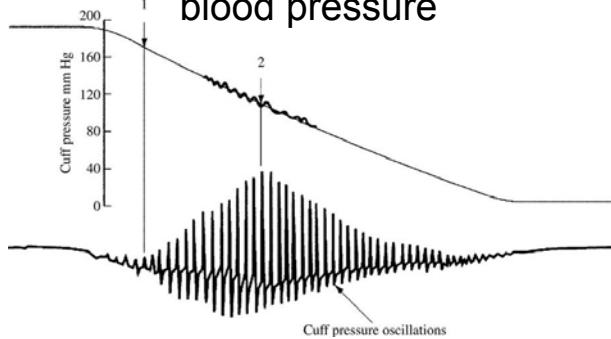


Figure 7.22 The oscillometric method A compression cuff is inflated above systolic pressure and slowly deflated. Systolic pressure is detected (Point 1) where there is a transition from small amplitude oscillations (above systolic pressure) to increasing cuff-pressure amplitude. The cuff-pressure oscillations increase to a maximum (Point 2) at the mean arterial pressure.

2

Integrated pressure sensors

- They provide an amplified signal 0-5V.
- Easy to integrate in applications.

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Case Study

- Design an Automatic Blood Pressure measuring system.
- Use the oscillatory method.

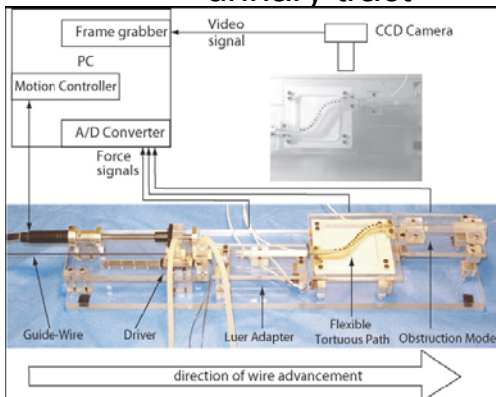
4

Case Study

- Pressure for maximum oscillation amplitude \rightarrow mean arterial pressure
- First pulse with amplitude $V_s \geq 0.85 V_{map} \rightarrow$ pSystolic
- Last pulse with amplitude $V_d \geq 0.55 V_{map} \rightarrow$ pDiastolic

5

Evaluating the force applied by guidewires and catheters on upper urinary tract



6
