



SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

COIMBATORE-35

Accredited by NBA-AICTE and Accredited by NAAC – UGC with A++ Grade

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

COURSE NAME: 23EET206/ Measurements and Instrumentation

II YEAR / IV SEMESTER

UNIT 5 - INSTRUMENTATION SYSTEMS

Topic 4 – Virtual Instruments versus Traditional Instruments



SUCCESSFUL STUDENT

Positive
Attitude

Professionally
Groomed

Socially
Interactive

Technically
Skillful



Conventional Instrumentation	Virtual Instrumentation
Pre-defined hardware components	User-defined measurement system
Limited functionality due to hardcoded functions	Versatile functionality using customizable software
Complex and expensive hardware	Complex hardware functionality implemented on software
Re-calibration is required	Re-calibration is not required
Bulky and stimulus specific	Compact and portable

A virtual instrument system comprises of three main components that are:

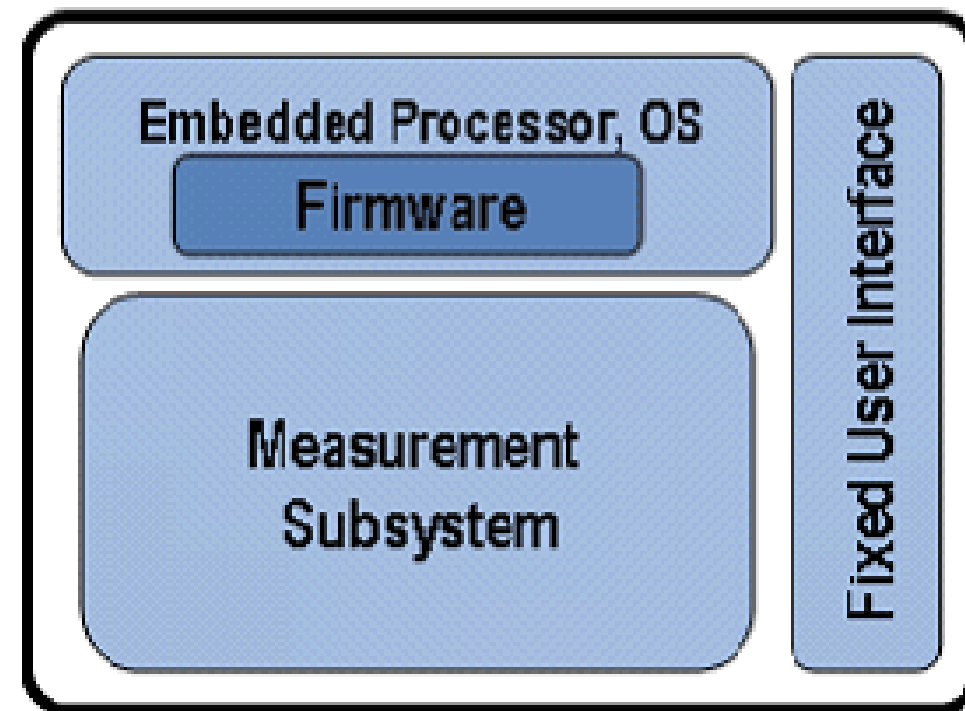
- Flexible software
- Modular data acquisition hardware (DAQ)
- Computing platform (e.g. PC)



Traditional Instruments	Virtual Instruments
Vendor-defined	User-defined
Function-specific, stand-alone with limited connectivity	Application-oriented system with connectivity to networks, peripherals, and applications
Hardware is the key	Software is the key
Expensive	Low-cost, reusable
Closed, fixed functionality	Open, flexible functionality leveraging off familiar computer technology
Slow turn on technology (5-10 year life cycle)	Fast turn on technology (1-2 year life cycle)
Minimal economics of scale	Maximum economics of scale
High development and maintenance costs	Software minimizes development and maintenance costs

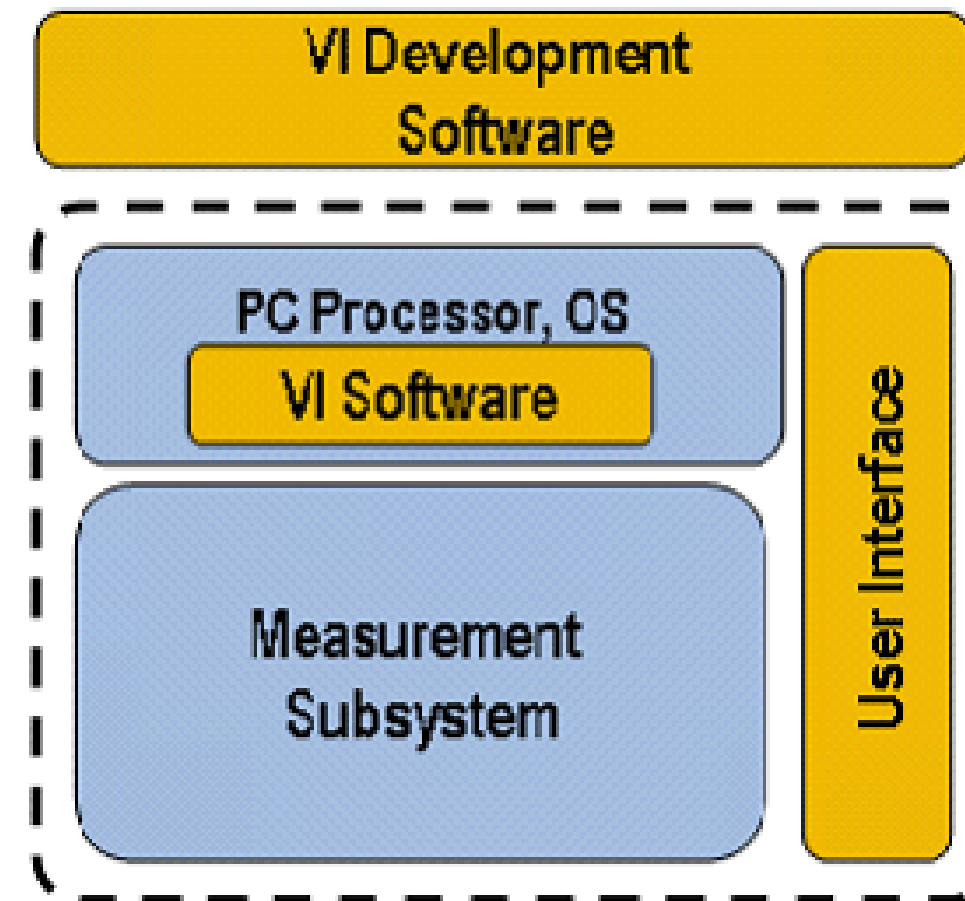


Traditional Instrument Architecture

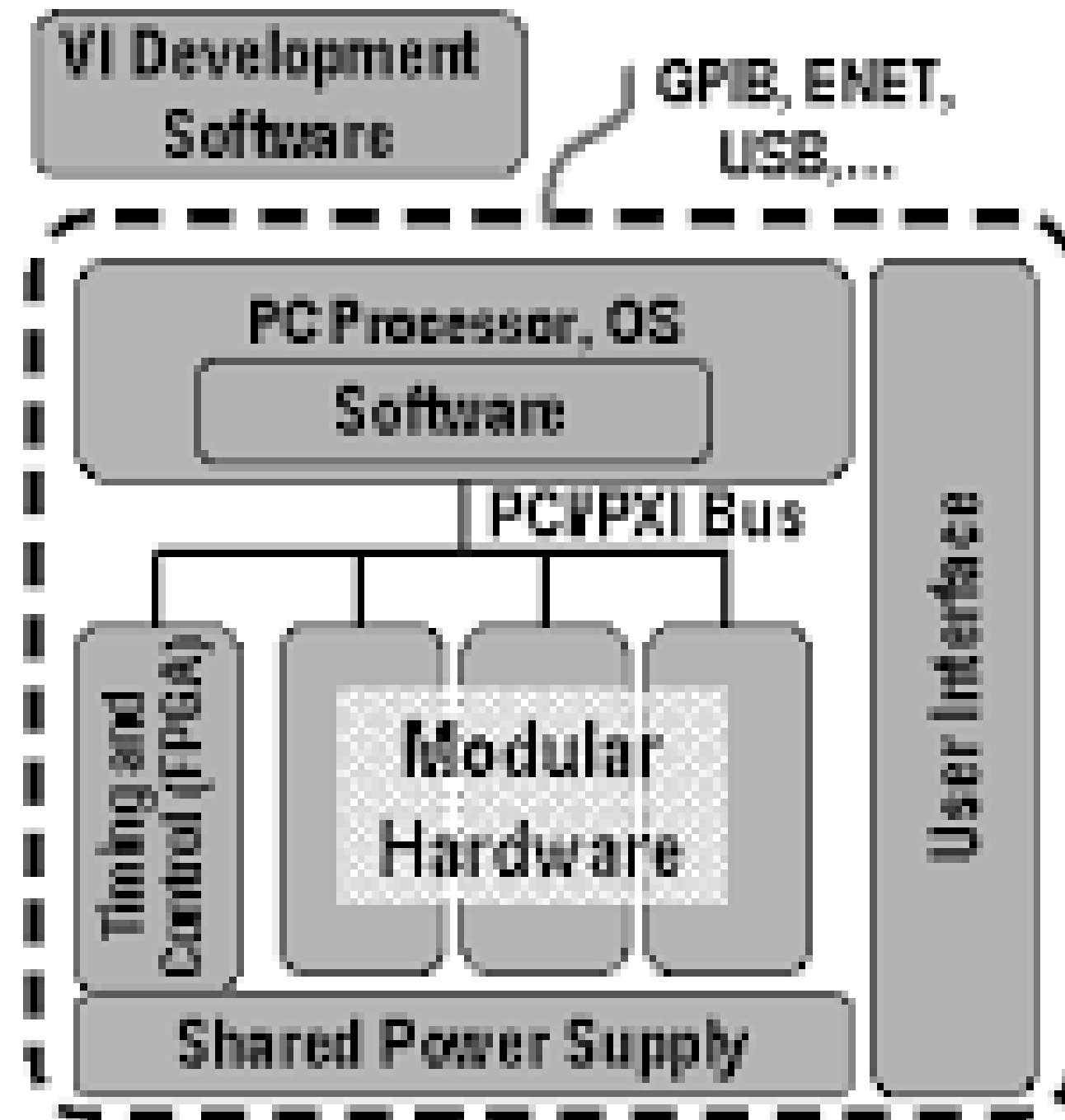
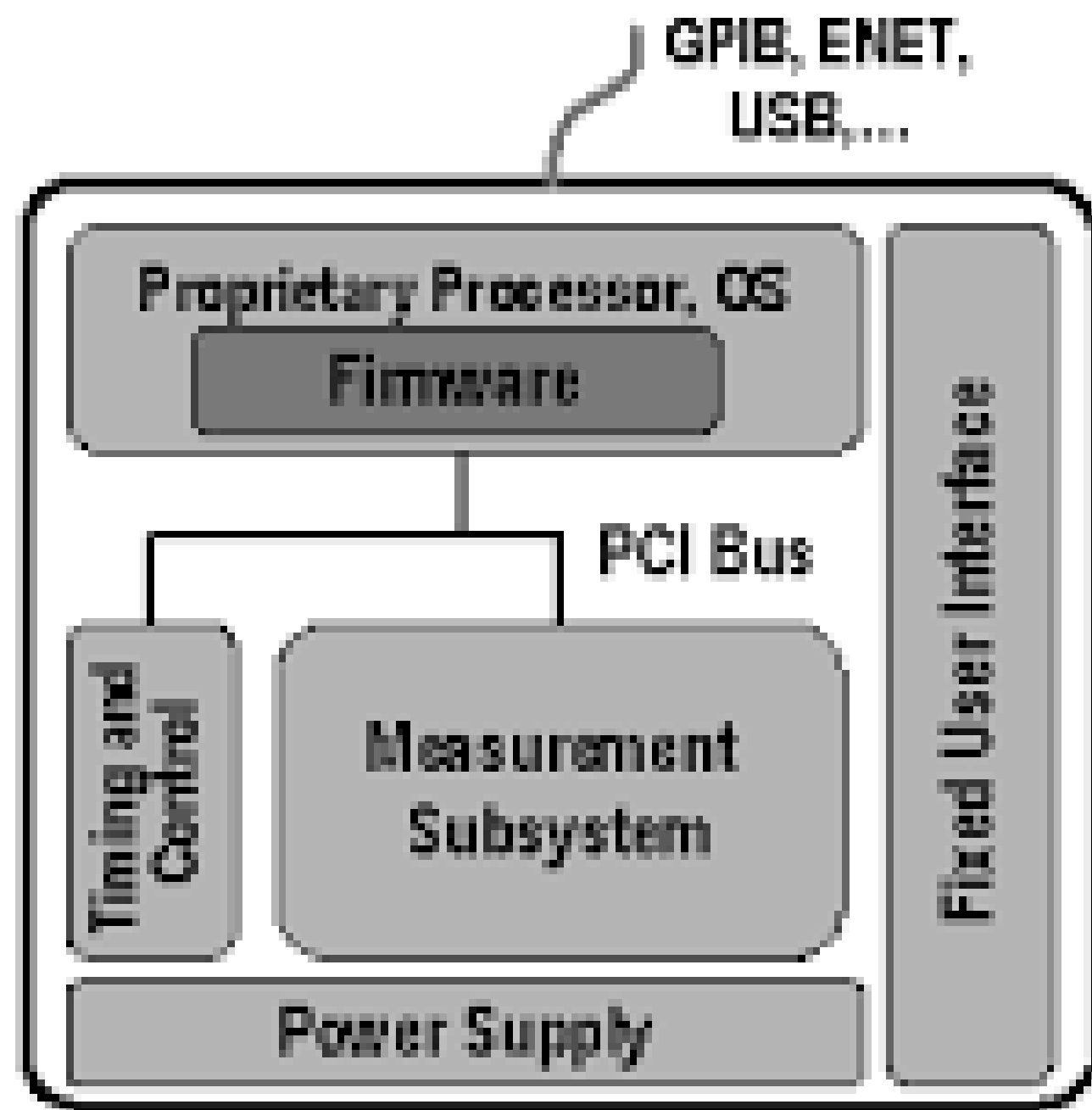


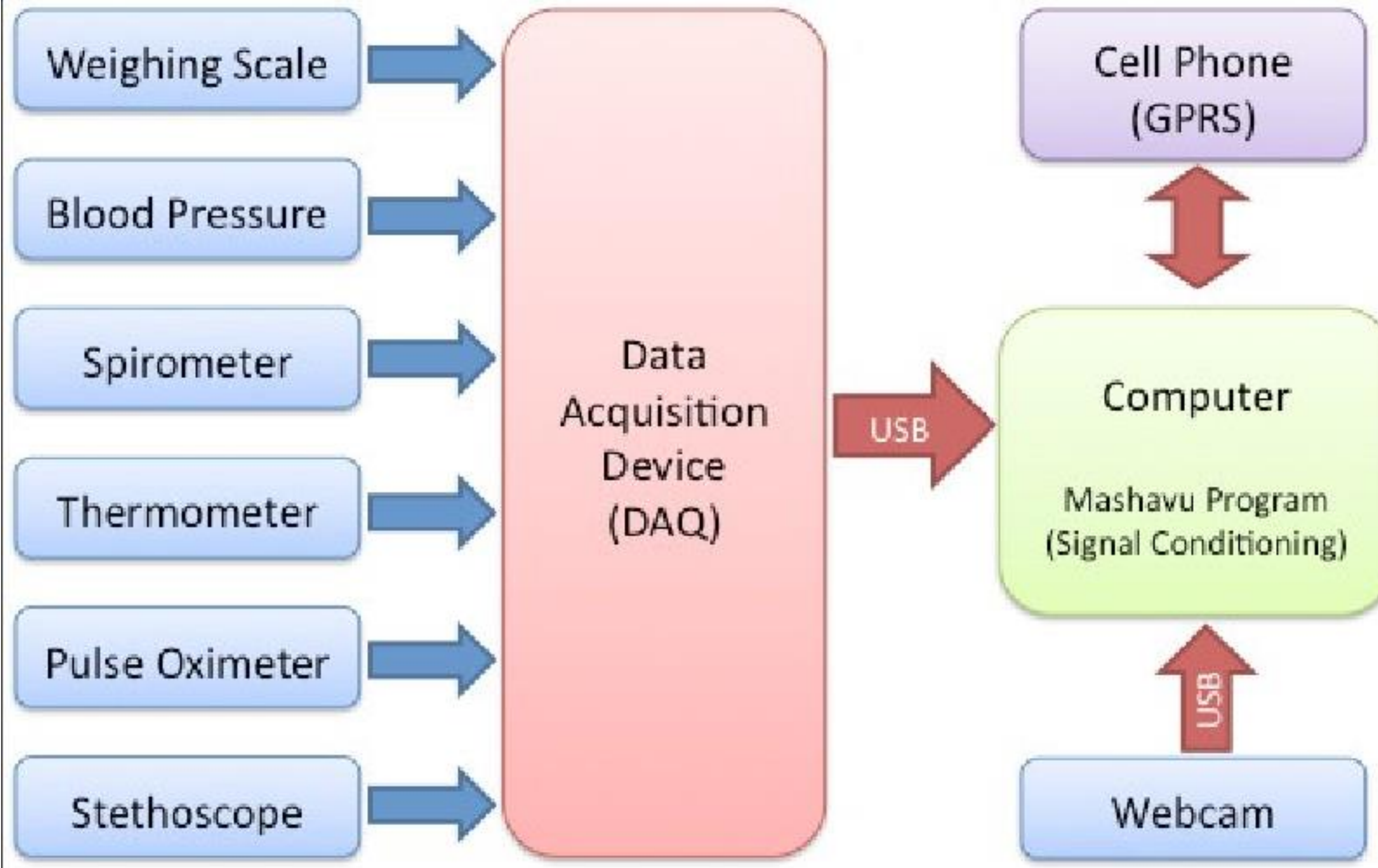
•Vendor defines/controls functionality

Virtual Instrument Architecture



•User/Integrator defines functionality through software







ASSESSMENT



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REFERENCE

TEXT BOOKS

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- T2 S. Gupta and J. John , "Virtual Instrumentation using Lab VIEW", Tata McGraw-Hill Publishing Company Limited, New Delhi, 2010.**

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THANK YOU!!