**Software Architecture of Wireless Projector**

**What is an embedded software architecture?**

An embedded software architecture is a piece of software that is divided in multiple layers. The important layers in embedded software are

* Application layer (Application Software)
* Middleware layer (Run time environment)
* Firmware layer (Basic Software)

**Wireless Projector**

In a common use projector’s have a cable to plug into to the pc or laptop, it is so inconvenient to search for the cable and plug in to the socket every time, the spins of cable will break likely after a few inserts. Everything is going wireless, so introducing a wireless connection in place of wired becomes a solution for the problem.

**Software Architecture**

Windows CE 5.0 is used as Basic Software, which has some characteristics such as: Instant power up, Low ISR (Interrupt Service Routine), real time, a lot of drivers for diverse devices, especially supporting wireless protocols and USB, it becomes perfect to almost every industrial process.

The BSP is middle software laid between Windows CE OS and hardware, which supports the boot loader, OEM adaptation layer (OAL), and device drivers for a specific hardware platform. We use the sample BSPs provided by Microsoft Windows CE for the SMDK2440A Samsung MCU Development Kit to quickly evaluate Windows CE OS features.

Application layer includes the software installed in PC or laptop, collects the data on the screen, sends it to the wireless projection gateway. Another software in the projector that decodes the data received from the gateway and renders the video stream to the output port.

The whole software system is described as follows:

1) Client software is PC-side software. Including the acquisition of user desktop information, due to the huge

amount of data collected, it must be encoded before the data is sent. This system uses advanced coding technology

H.264 , thus ensuring the smoothness of data transmission and stability.

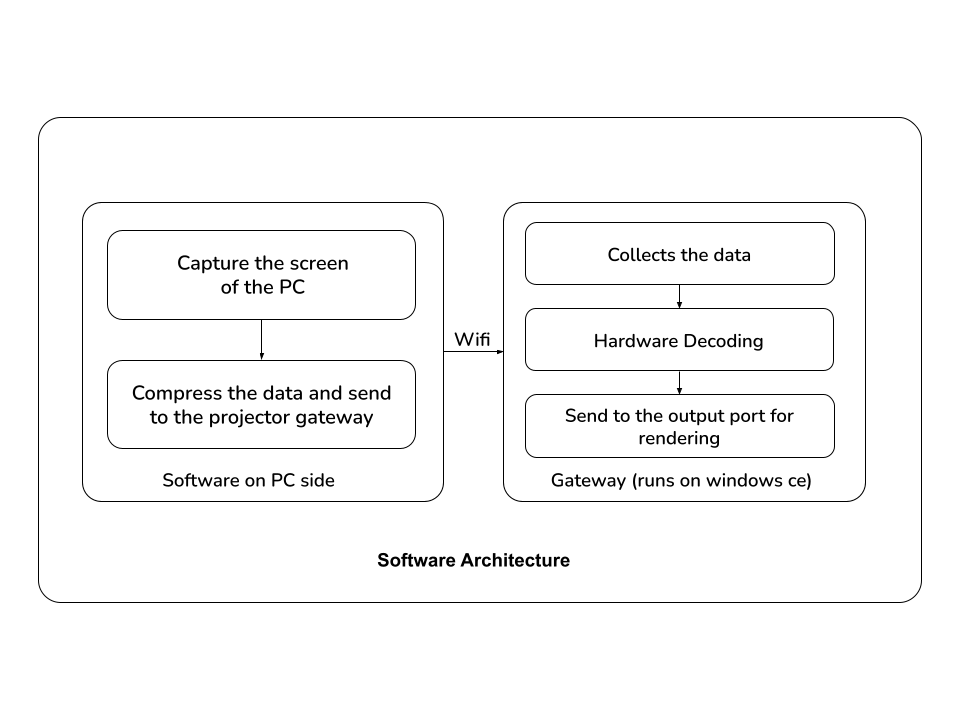
2) Wireless projection gateway software is in embedded development board, it continuously receive the data stream

transmitted by the client, decode in turn and make the projection display.

3) The underlying data transmission part uses WLAN technology. In order to protect the high real-time data

transmission and low latency, the transport layer of this system uses RTP /RTCP protocol.

After the wireless client and the wireless projection gateway establish their connection through the soft AP, they can communicate by using the Socket

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