

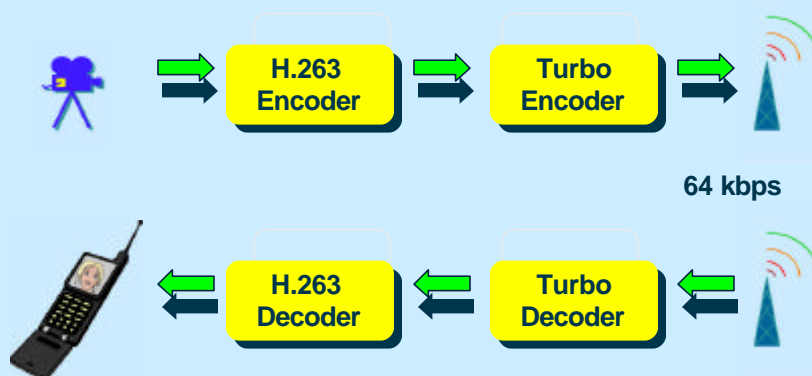


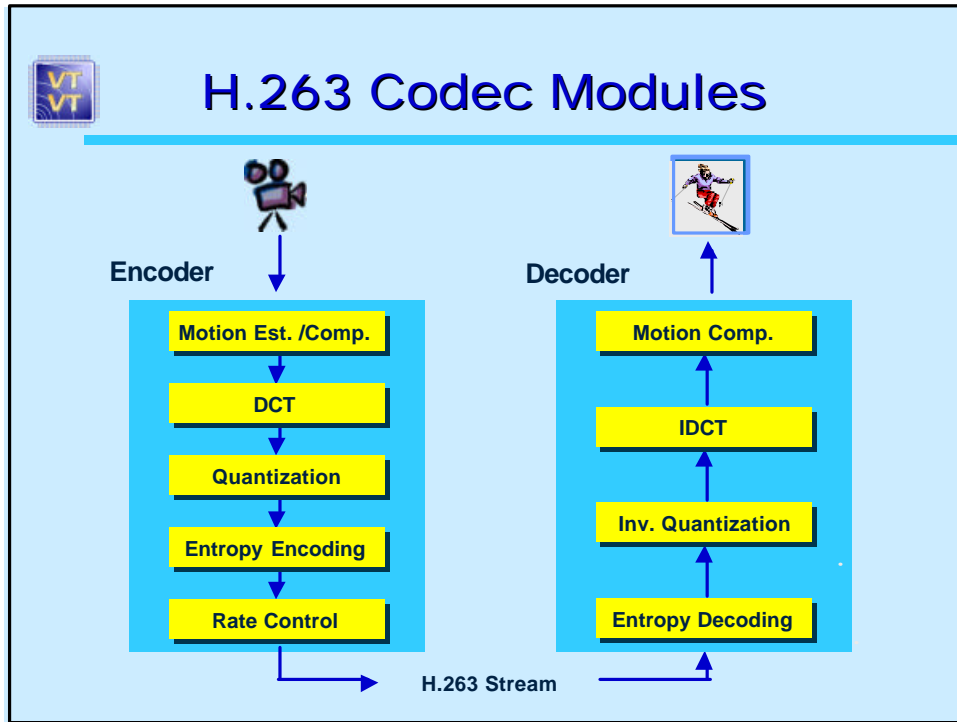
System Features

- **Low-power ASIC** codec design for low-data rate wireless video communications based on ITU H.263 recommendation
- Data transmission rate is **< 64 kbps**
- Video format – QCIF (176x144 pixels)
- Possible applications:
 - ◆ Cellular videoconferencing
 - ◆ Surveillance
 - ◆ Mobile patrols



Overview of the System





Proposed Motion Estimation Method

- Our proposed motion estimation method called **Center Based Hybrid Search (CBHS)** achieves speed-up factor of 20 over Full Search
- Performance of the proposed method

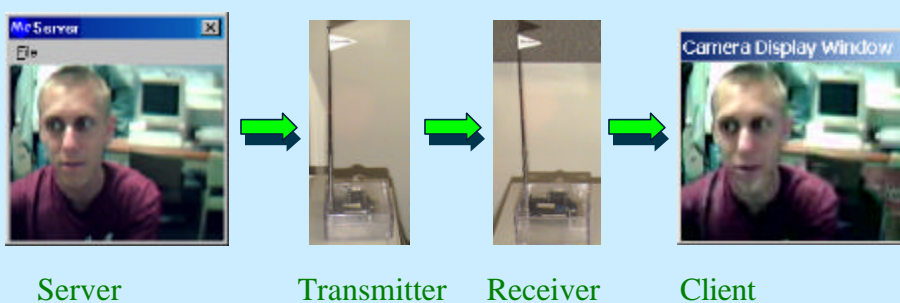
Two bar charts compare the performance of different motion estimation methods (FS, TSS, 4SS, NFTSS, UCBDS, CBHS) for two video sequences: Miss America and Trevor. The y-axis represents a performance metric (likely speed-up factor) ranging from 0 to 25. The x-axis lists the methods. CBHS consistently shows the highest performance, significantly outperforming the other methods.

Sequence	FS	TSS	4SS	NFTSS	UCBDS	CBHS
Miss America	~1	~10	~14	~18	~18	~24
Trevor	~1	~10	~14	~18	~18	~24



Prototype System

- The prototype system runs on PCs, and data are sent through transceivers
- Typical bandwidth without error correction coding : **< 20 kbps**
- Typical frame rate: **6-8 frames/sec**



Future Plan

- Current
- Porting to FPGA boards
- Low-power ASICs

