**CAM-CODER**

**Working of CAM-CODER (Application of Mechatronics)**

* Light from the optical lens assembly projects an image onto the *charged coupled device*(*CCD*)/ CMOS imager.
* The CCD is a photosensitive array which is charged by the light falling on it.
* The charge is then converted into a continuous analogue voltage when the CCD charged elements are scanned line by line.
* After the scan is completed, the CCD elements are reset to start the exposure process for the next video frame.
* Embedded within the CCD is an analogue-to-digital converter to produce a digital output for further processing by the camera processing block ready for data compression by the MPEG codec.
* The camera processing chip carries out such functions as ‘*steady shot*’, zoom and focus motor control and dig- ital picture effects.
* The MPEG-coded data are fed into a video buffer. Digitised Y/C data are also fed into the *electronic viewfinder*(*EVF*) for monitoring by the user. Stereo sound from audio microphones are A/D converted and the PCM audio data placed into an audio buffer.
* The MUX/DEMUX receives the compressed video and PCM audio streams from the corresponding buffers, packetises and multiplexes them into a standard MPEG-2 program stream (PS) to be stored in a PS buffer.
* Data in the PS buffer are then used to write on the recording medium which could be a DVD disc, an HDD or a magnetic tape.
* In the playback mode, the process is reversed and this is the reason for using an MPEG codec chip instead of just a coder and MUX/DEMUX instead of just a MUX.
* In the playback mode, data from the recording medium are demultiplexed and decompressed and fed into the EVF for display.

