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ZyGoCasting™ for Submarines

Streaming & High Volume Digital Video Recording

ZyGoDigital's ZyGoCasting solution provides real-time, broadcast video streaming and digital video recording for the Navy's nuclear submarine fleet as part of the Integrated Submarine Imaging System (ISIS) program. The ZyGoCasting solution is comprised of ZyGoCaster™, ZyGoOASIS™, and ZyGoMediaShow™. ZyGoCaster is a broadcasting application that streams Standard Definition (SD) or High Definition (HD) videos at low latency from periscope cameras. ZyGoCaster will simultaneously stream video while recording video clips, sensor data, and stills (taken from the live stream). As ZyGoCaster records videos, it appends sensor data as metadata into the video itself. ZyGoCaster receives the metadata over IP network. The metadata is in XML format and can be anything from time codes, to radar sensor inputs provided in real time. ZyGoCaster executes remotely under program control, and on processors running OS/X or Windows. The Windows version of ZyGoCaster will record both SD or HD compressed and uncompressed video simultaneously to ZyGoOASIS in addition to stills and metadata.

ZyGoOASIS runs on an archive server connected to high capacity RAID storage. ZyGoCaster automatically loads video/metadata to ZyGoOASIS's database. ZyGoOASIS provides a Java Applications Programming Interface (API) to allow a user to query, control, and view the video elements in the database. Important elements of the API's capabilities are described in this paper. Stills are loaded into the database upon user request and thumbnails are created for each still; metadata is associated with each still and it's thumbnail. A thumbnail is also created at the beginning of each video clip (with associated metadata). The API will retrieve these thumbnails via metadata searches so that an operator can visually verify correct video content. The API also allows selecting a thumbnail to create a Java player window to view the associated video clip with or without metadata overlay. Identical videos can exist for a streamed event, one compressed, the other uncompressed. The API returns the appropriate path name of each video so that the desired quality can be retrieved and viewed from a high volume RAID device.

Videos are viewed by ZyGoMediaShow in real time, as streams, or from recorded videos streamed out of ZyGoOASIS. ZyGoMediaShow Lite was created for use on submarines as a Linux-based, programmatic version of ZyGoMediaShow running inside a Java application. ZyGoMediaShow Lite is used by the submarine's display software to provide a full screen display of one of several selected streams (real time or recorded). ZyGoMediaShow Lite can also be used to provide a dual split screen of two selected streams. Finally, ZyGoMediaShow Lite's API provides access to metadata within the video stream to drive computer generated sensor output displays.



