

Technical Specifications and Smart Classroom Recording Solution

Title: Design, Installation and Operation of Classroom Recording and Webcasting Facility

Specification:

Make/Model: Eduspot (Proprietary software)

Quantity: As required

- **Objective of the facility:** Two different learning modes are expected to be served by proposed facility.
 1. **Recording of Lectures:** This mode will be used for recording the lectures delivered using blackboard or whiteboard with slides. Recording will be possible with blackboard or whiteboard of ANY size with automated camera pan and zoom for excellent rendering of writing on the BB/WB. Slides will be captured automatically via software. It should also be possible to move the camera MANUALLY by mouse clicks to be able to show anything projected on the classroom projection screen. Slides are also automatically created from the video for random access in the absence of PPT or PDF based slides.
 2. **Sharing of recorded lectures:** This mode will be used to deliver the recorded lectures as in 1. above, to students either in the classroom or online using any videoconferencing technology via screen sharing. This will allow Face-to-Face interaction between the instructor and the students with the ability to capture the voice as well as video of the interacting students during delivery; as well as for the instructor to go back and forth in the recording as needed during delivery. A document reader is used for any additional written explanation during delivery that will be seen by students via screen sharing. The delivery of recorded lectures to students using VC can also be recorded and shared to students by the instructor by storing these recordings in the personal cloud storage like Google Drive, Drop Box etc.
- **Features:** Each classroom will have following features.
 1. The facility will have ONE movable camera, one high end desktop for camera control and video encoding, one laptop for instructor and audio components to capture instructor voice.
 2. The software will provide automatic video/slide synchronization.
 3. The slides captured automatically must be either in PDF or PPT format.
 4. Instructor mobility 180 Degrees (Unlimited).
 5. **Automated pan and zoom to capture both instructors as well BB/WB writing with clarity.**
 6. The facility will have the ability to manually control camera movement of the camera through a mouse via a User Interface.
 7. **Automatic text extraction of slide titles and body text for random access allowing the recording to start playing from an extracted title or from a slide in which a word of interest is present.**

- **Storage:**

1. At the end of the recording, the folder containing all the elements of the recording such as video, slides, thumbnails of slides, an info.xml text file with timing information of the slides with respect to the video are all generated automatically and made available on dedicated servers and the video compressed automatically so that at least one year of recordings are available for students to play as and when they wish to revisit the lectures they attended.
2. The instructors can record the lectures at full HD and use the high resolution version made available locally at the high end desktop to replay to the students via VC products. The desktop will have enough storage capacity to hold at least 2 years-worth of recording.
3. The locally saved High-Definition content is compressed to 640x480 resolution using specialized encoders to reduce the size of recording to approximately 210 MB per hour of lecture with decent quality and bit rate low enough for easy steaming even under poor bandwidth conditions. (<500 kb/s)
4. Software will have the ability to automatically concatenate a video clip with a sample lecture and use such a composite recording for publicity purposes.

- **Portal**

1. A portal website will provide access to the recordings hosted on dedicated servers.
2. Recordings can either be accessed by logging into the portal and searching by course name/lecture name or by directly pasting the recording of each lecture that the instructor sends to the students.
3. An administrative login will be made available for deletion of trial recordings or obsolete recordings.