

# TrackingMaster

The TrackingMaster is used for the automated tracking of professors in lectures, to keep the professor in the picture at all times. For this purpose, a PTZ camera is automatically moved using data from external sensors. Laser-based tracking and automated camera movement enables professional and light-independent recordings without additional staff.

## THE FUTURE IS HYBRID!

Students like to enjoy the advantages of a face-to-face university, but at the same time they want to be able to **follow lectures from home**. Recorded lectures also offer great added value for follow-ups at home.

**But not all content is the same.** For the didactics of higher education, it is of fundamental importance that the professor is portrayed as a full image, so that his or her emotions, facial expressions and body language can be recognised. Studies have shown that this significantly increases the learning success.

**Ease of use.** Automated tracking must be able to be started and stopped at the push of a button.



[more infos](#)

**Tracking  
Master**  
Automated person tracking

**NEW VERSION 1.5**

**GAME CHANGER**



The AVard  
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# The advantages at a glance:

Use the current transformation as an opportunity!



## BENEFITS FOR STUDENTS

- ▶ High-quality and detailed video recordings of the lecture are immediately and automatically available.
- ▶ Increased learning success thanks to recognisable gestures and facial expressions of the moving professor - in contrast to video recordings of the entire width of the lecture hall.
- ▶ Flexible lecture organisation as well as time- and location-independent learning.
- ▶ Repetition of lecture is possible thanks to the recording.
- ▶ Even in the case of face-to-face events in large lecture halls, the teaching content can be better illustrated if the lecturer and the blackboard are recorded in close-up.



## BENEFITS FOR PROFESSORS

- ▶ **Reliable position recognition of the professor:** Passing students near the stage or large projections behind the professor do not interfere with the tracking behaviour.
- ▶ **Different „walking and movement patterns“** of the professor are recognised and captured with fluid camera movements.
- ▶ **No restrictions for the professor:** Free movement and rotation also towards the blackboard. The professor does not have to carry a marker and the face does not have to be taught in advance to the system.
- ▶ **Simple operation:** Easy-to-use system (software and hardware), so that the professor can concentrate on the teaching.
- ▶ **Ready to use:** Professors can start/ stop tracking with the click of just one button.
- ▶ **Bring your own device:** The professor's device can still be connected via the media control.



## BENEFITS FOR MEDIA TECHNICIANS

- ▶ Automated, smooth and trouble-free camera control.
- ▶ Many configuration options to be able to meet individual requirements.
- ▶ No additional staff for camera control & direction necessary.
- ▶ Automatic recognition of multiple speakers.
- ▶ Can be used reliably even in difficult lighting conditions, as it is not the recorded image that is analysed but the sensors recognise the speaker.
- ▶ Complete workflow can be automated starting from a high-quality recording until the storage of the content (e.g. Opencast).
- ▶ Integration into the existing media technology of the auditorium or seminar room.
- ▶ Data protection compliant: No evaluation of the video image. Only the metadata of the laser sensors are analysed.
- ▶ English-speaking development team and continuous further development based on customer feedback.

# Use cases for hybrid teaching.

The open interface (REST-API) in version 1.5 again significantly improves the integration of the TrackingMaster into the overall system, enabling a variety of new use cases that are relevant for hybrid teaching.

## Use case 1: Use of two camera streams to record students

As soon as the lecturer moves towards the students and stands in front of them, the system switches to a second camera. This allows the virtual participants to also see the students in the lecture hall, when the lecturer communicates with them or when the students ask questions. The lecturer does not have to press any buttons. This is a further step towards the automation of the

## Use case 2: Integration of a visualizer

Visualizers are used in many lectures. The students' focus should then be on the content/object displayed there. As soon as the lecturer stands in front of the Visualizer, the TrackingMaster recognizes this, switches to Visualizer and gives the media control the command not to stream the camera image but the image of the Visualizer.

## Use case 3: Use of two cameras to ensure an optimal angle for shooting a wide stage

Depending on the position of the lecturer, the system intelligently switches between two cameras to always show the most advantageous image. Simultaneous tracking with two cameras is also possible when using two processing units.

## Universities are enthusiastic about the TrackingMaster!



„When designing the IAAC chemistry lecture hall, we had to break completely new ground. We were faced with the challenge of planning a lecture hall that would be suitable for a wide variety of recording and streaming scenarios without the need for a control room, and yet would not distract the professors from the actual lecture with complicated operation. With the jointly developed tracking system, we succeeded with excellence.“

Tino Tschiesche, deputy director of the Multimedia Center (MMZ) at Friedrich Schiller University Jena. The heart of the system is the tracking software, which was developed together with dedicated fellow MMZ members.



„Laser-based tracking system TrackingMaster is unique in Germany. Until now, there were only infrared trackers on the market, which you put around your neck on a band, and face tracking. However, in our opinion, these two technologies are impractical and prone to interference, which is why we finally decided to go with the TrackingMaster. It was also important to us to use a system that the user could connect with one or two cables, then press a button and go live. We quickly realized that we wanted to try this out and have now installed the TrackingMaster here at the THM Friedberg. The system has paid off. We get very good feedback from the lecturers.“

Florian Diehl, Producer of Educational University of Applied Sciences Mittelhessen Friedberg

„The TrackingMaster is an innovative product with which we establish professional media technology for hybrid teaching at colleges and universities. As a system integrator, we have a trusting partnership with the manufacturer VST GmbH in Germany. We are the first certified „Premium Partner“ and offer our customers a showroom in Meckenbeuren at Lake Constance to experience the reliable functionality of the TrackingMaster.“

Thomas Bellgardt, owner of Bellgardt Medientechnik in Meckenbeuren (Lake Constance), system integrator



## ADVANTAGES OVER OPTICAL SYSTEMS

**Optical systems can be used for simple rooms with constant light and when there are no special requirements for tracking.**

- ▶ Optical systems are offered by the respective camera manufacturer, the TrackingMaster is manufacturer-independent.
- ▶ Optical systems detect the movement of the lecturer only on one axis. Approaching the blackboard cannot be detected and therefore no camera behaviour (e.g. zooming up) can be triggered, so that the writing is easily readable.
- ▶ The TrackingMaster can define the value of zones so that, for example, students walking through the area of the blackboard are not detected if the lecturer is standing at the desk.
- ▶ Optical systems usually work with a quality reduced stream and are therefore more susceptible to interference. The TrackingMaster, on the other hand, works completely independent of lighting conditions or other optical interferences such as striped clothing.
- ▶ The TrackingMaster also detects people from behind or from the side. In addition, it is not necessary to teach the software, e.g. by storing a photo of the professor.

## ADVANTAGES OVER AUDIO-BASED SYSTEMS

**Audio-based systems are primarily intended for rooms in which no movement takes place and the people are sitting at a large table.**

- ▶ The TrackingMaster continuously tracks the professor: audio-based systems do not allow tracking, but only the automatic selection of defined camera settings (preset zones).
- ▶ Even strong ambient noise does not cause interference with the TrackingMaster.
- ▶ On the other hand, the TrackingMaster also works when the professor is not speaking.
- ▶ Our laser-based system is much more accurate than audio-based systems (tracking to centimeter accuracy) and can therefore enable smooth camera movements.
- ▶ If more than one person is on stage, the TrackingMaster recognizes this and adjusts the camera position so that both people are in the picture.



## OUR RECOMMENDATION IN ADDITION TO THE TRACKINGMASTER:

### INDOOR REMOTE PTZ CAMERA CR-N700, CR-N500 & CR-N300

- ▶ **Broadcast image quality:** Professional grade video, providing sharp and crisp images.
- ▶ **Always reliably sharp:** Canon sets the benchmark in auto focus speeds and accuracy in low light conditions. Thanks to intelligent face detection & tracking, the cameras always know who should be in focus.
- ▶ **High precision mechanics:** Enable quiet and smooth on-air movements, even in diagonals.