Sport
# CASE STUDY

## Live broadcast from a stadium? An affordable investment with a long-lasting effect

## About the project

**The ice hockey arena in Sedlčany** is a popular sports venue among residents of all ages in this Central Bohemian town. Like many other nearby sports facilities, however, it isn't always big enough to accommodate everyone. Therefore, the director of the arena, František Kadleček, has long been considering investing in a live broadcast from the ice rink that would allow potential visitors to see in real-time how busy the arena is and also let grandparents and other supporters of the local junior hockey players watch practice and matches. The problem, however, is finances – the stadium is a contributory organization with a limited budget. "In the end, installation of the live stream got a boost in the form of positive feedback from the arena in Trutnov, which opted for a solution from NetRex that works without the need for any special streaming platforms. So, installation of the live stream was given the green light," explains Daniel Macák, account manager from NetRex, local installation partner who uses CamStreamer applications.

## Technical solution

Camera tests demonstrated that the **AXIS P1375-E** would be best suited to the live broadcast. The camera can broadcast video in **FULL HD quality at a rate of 60 frames per second**, so it has no trouble capturing even more dynamic sports like hockey. Additionally, it features a sufficient viewing angle and supports audio transmission. Thanks to the technology **Lightfinder 2.0**, the camera can also produce high-quality shots in poor light conditions. The direct and simple transmission of the video stream to the **YouTube platform** is handled by the **CamStreamer App**, which runs directly onboard the camera.

Displaying the score of a match in the picture turned out to be a challenge. "We turned to the company that





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| **Video quality** | 1080p / 60 fps |
| **Audio** | External microphone |
| **Camera model** | AXIS P1375-E |
| **ACAP applications** | CamStreamer App CamOverlay App (picture in picture service) |
| **Streaming platform** | YouTube Live, website |
| **Location** | Czech Republic |

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operates the existing scoreboard. To get information about the match into the live broadcast, the stadium would have to invest in a converter that cost roughly $2,200, which made that option unrealistic. The price simply didn't fall within the budget available to the stadium," says Mr. Macák. The problem was overcome thanks to another application by CamStreamer – the **CamOverlay App**.

The **CamOverlay App** was created to provide easy and user-friendly integration of graphic elements into a live broadcast. One of the app's functions is a **service called Picture-in-Picture (PiP)**, which makes it possible to **insert a shot from another camera into the picture being shown by the main camera**. The PiP feature can refresh the inserted shot at a speed of up to 30 frames per second, though the majority of common installations suffice with an interval of one frame per second. For this purpose, the stadium in Sedlčany had an older Hikvision camera available. "We moved the camera right up to the panel with the score and integrated the image into the stream coming from the AXIS camera. The PiP service has proven a very effective solution in situations like this," says Mr. Macák. "If the client didn't have own second camera, one of the possible options would be to purchase a new **AXIS M1124**, which costs approximately $349. Even then, we're still at a fraction of the price of the original offer from the operator of the scoreboard."

## Conclusion

Cost efficiency is one of the biggest advantages to a streaming by means of camera applications. **The entire installation cost the stadium in Sedlčany approximately $1,750.**

The system **can be further upgraded and expanded in the future**. For example, it's **very easy to display sponsor logos, the current time, and other practical information**. The **CamOverlay App** offers a special service for connecting scoreboard information by means of an API, and it also allows for the import of custom graphics designs, resulting in a **professional score display**. "**With this streaming solution, the client gets an immense number of possibilities, and all he needs is a camera and an internet connection; he takes care of everything else in his web browser because otherwise, network cameras are essentially maintenance-free. In terms of simplicity and cost efficiency, this solution is unmatched**," says Mr. Macák in conclusion.

https://camstreamer.com/resources/case-study_sport_stadium