Summary of projects from shortlisted EuroTeQ Collider teams at CTU participating at the EuroTeQathon.

Challenge - Digital Ear – An automated anomaly detection in brewing machinery

Team name - Anomaly Pulse Masters
Challenge Collaborator - Pilsner Urquell (Asahi)
Summary of the project - In Kozel's brewery and similar facilities, control engineers traditionally rely on their auditory skills to detect machine anomalies. However, this method faces challenges such as engineers being confined to control rooms, falling sick, or misidentifying normal sounds as anomalies, leading to costly production halts. To address this, the Anomaly Pulse Masters introduce YeastBeat, an innovative sound detection and monitoring solution. YeastBeat consists of an affordable monitoring device with a custom algorithm and an intuitive interface. The device is easily mounted near machines and learns their normal operational sounds. Once trained, YeastBeat can hear, record, filter, analyze, and alert to any abnormal sounds in real time. This technology does not require pre-existing labeled audio datasets, as it adapts to the sounds it encounters. With high accuracy, detecting 95% of anomalies and maintaining a low false positive rate, YeastBeat simplifies monitoring and offers significant cost savings compared to traditional industrial systems. Future updates will enhance its capabilities further by storing and updating data, improving anomaly detection accuracy and reducing manual machine checks. YeastBeat ensures seamless operations and consistent product quality, representing a significant advancement in industrial monitoring.

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