Web-Intelligence WS 25/26 **Name:** Irmak Damla Özdemir **Matrikel-Nr.:** 5123127

Illustrieren Sie das Internet der Dinge an Ihrem Anwendungsfall.

Trending Health News: IoT Perspective

A suitable IoT use case for integrating the Trending Health News application is a **Smart University Campus Health Management System**. This system operates in a public and institutional environment and focuses on the health and safety of a large population.

Modern university campuses already use IoT technologies such as occupancy sensors, air quality sensors, and automated ventilation systems in lecture halls, libraries, cafeterias, and sports facilities. These devices typically react only to local measurements such as CO_2 levels or temperature. The proposed system extends this approach by incorporating external public health signals derived from online data.

In this scenario, the Trending Health News application acts as an external public health signal provider within the IoT ecosystem. The application analyzes health-related news articles from multiple online sources and identifies trends such as increasing discussion of influenza, respiratory infections, or hospital capacity issues.

Instead of functioning as a physical sensor, the application serves as a form of digital sensing health developments reflected in online media. The extracted trends are transformed into structured health risk signals that can be consumed by the campus IoT system. Example of a generated health signal:

```
{
  "risk_type": "respiratory",
  "risk_level": "high",
  "confidence": 0.88
}
```

This signal is transmitted to the campus IoT gateway via a REST API or message-based communication protocol.

Once the campus IoT gateway receives a high-risk health signal, it coordinates the behavior of multiple physical devices across the campus:

- Ventilation systems increase fresh air circulation to reduce infection risk in lecture halls.
- Maximum occupancy thresholds are lowered during peak risk periods in libraries.
- Digital displays warn users about elevated respiratory health risks in sport facilities.
- Health advisories are shown on public screens or campus applications.

The actions occur automatically and are triggered by detected trends rather than manual intervention. This behavior is characteristic of IoT systems, where physical devices respond dynamically to changing environmental or contextual inputs.

The perspective demonstrates how IoT architectures can be enhanced by incorporating web-based intelligence. The integration of IoT with Web Intelligence provides several benefits like proactive health management and context-aware decision making.