# Projekt: LoRaWAN  IoT GPS Tracking System

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**Kurzbeschreibung:** This project focuses on developing an IoT-based localization system to track industrial machines stored in outdoor storage areas during the final stages of production. In the existing process, machines are placed in a shared storage area before final assembly steps, and employees often need to manually search for specific units. This process can take up to 30 minutes and frequently causes delays in production coordination.

To address this challenge, a compact and reusable tracking device was developed using an ESP32 microcontroller, a GPS module, and LoRaWAN communication. The device collects location data and transmits it through a LoRaWAN gateway to The Things Network for processing. The data is then visualized using TTN Mapper and a custom web-based dashboard that displays machine locations, battery status, and connectivity information in real time.

The system significantly reduces machine search time, improves coordination between departments, and supports more efficient production planning through real-time asset visibility.

**Project partner: Fa. Horsch, Landau/ Isar**