5. **Automatic Sand Temperature and Moisture Control System Using Smart Water Sprinklers**

Objective

To design and implement an **Automatic Sand Temperature and Moisture Control System** that monitors the temperature of sand in a sand plant and regulates water sprinkling automatically to maintain optimal moisture levels required for sand processing and molding operations.

Problem Statement

In foundry and sand processing plants, maintaining the correct **sand moisture content** & **sand temperature** is critical for ensuring proper mold strength, compaction, and casting quality.
Currently, moisture control is often done **manually** or using **fixed-time sprinkling**, which can lead to several issues:

- **Inconsistent moisture content** due to temperature fluctuations.
- **Overuse of water**, leading to material wastage and drying delays.
- **Reduced process efficiency** and **variable casting quality**.
- **Manual monitoring** is time-consuming and prone to human error.

Hence, there is a need for a **smart, automated system** that senses sand temperature and controls water sprinkling dynamically to maintain optimal moisture levels