Name: Yash Mathur
Roll Num: SE20UARI168

IoT Course Project: Digital Twin

Topic: Preparing the digital twin for a railway bridge that is quite old, to see how much load it can withstand (I.e. checking it's health) to know the right time to schedule maintainence and upgrade the bridge to prevent damages.

Use Case: Stress strain analysis for the load of a consumer train, as well as a cargo train. It has been checked with a load of upto 15006000N, which is roughly 20% more than the average expected weight, as it is a lot more critical to prevent mishaps, than to use the bridge to it's maximum life.

Functionalities:

-> Stress Strain Analysis

-> Effects of Rain on the material properties and strength

Limitations:

-> As composite materials are beyond my current knowledge scope, it has some restrictions on the material being solo type. Also, we could only go as deep as would be allowed by Ansys Student version. These 2 factors would impact and fidelity, and hence would serve more as a proof of concept for the digital twin at this stage.