Good day, I am FJ Fourie and this is my Problem Contextualisation Oral Presentation on the Distributed IoT environmental monitoring project.

**Context and analysis of the problem:**

To improve the general efficiency of a smart building measurements of the environmental conditions must be collected. These measurements will be taken over a large area to improve the quality of the data. Once the measurements are collected the data will be stored, communicated and displayed on an IoT platform.

The first part of the problem requires the analysis and monitoring of an HVAC system, this means that there will be sensors needed on the different components of the system. Namely the Heating, Ventilation and air conditioning units, it can also be considered to further broaden the system by monitoring things such as lights and doors in the building. This is complicated a bit by the fact that the system needs to be installed into an already operational building.

The second part of the problem is that the HVAC monitoring system needs to be connected to the Internet of things. This is necessary to enable things such as, Real-Time Monitoring which will allow system managers and engineers to immediately see gathered information. Predictive Maintenance that can pre emptily inform technicians of system failures or unusual equipment behaviour. Remote Diagnostics allows engineers to evaluate data from a system from anywhere and at any time making for quicker response times and ease of use. Increased Efficiency by analysing data and enabling pre-emptive actions to be taken to decrease power usage and improve the efficiency of the HVAC system.

**The problem:**

Installation of all the sensors in an already constructed building and the establishment of communication between all the sensors. To accomplish this multiple temperature and humidity sensors will need to be installed throughout the building and there will be a reliable method of communication necessary between them. That system then needs to be able to communicate with the cloud in order for the data to be processed. A reliable internet connection for the sensors and a program in the cloud that can meaningfully process and analyse the data is necessary for this. A platform is then necessary to store and display these results so that they can be used in an effective way.

**Project objective:**

A buildings HVAC system needs to be monitored and all the collected data needs to be transferred to the cloud where it needs to be analysed. A program for the meaningful interpretation of the data must then process the data by analysing the data and taking historic data as well as data from outside sources into account. The system needs to generate valuable results that can be displayed and stored in the cloud making it easy for users to respond and act accordingly to the data.

That concludes my presentation have a nice day