To Do – 26-Aug-2015

1. Create line diagram of compressor process
2. Encode rules relating to four key temperature differentials – if there is an increase where there should be a decrease and vice versa then there is a problem with either a sensor or the component in question
3. Repeat above for thresholds for the four temperature differentials – find a threshold that will do for now and encode that
4. Set thresholds for individual temperatures where applicable – as applicable draw from the warning levels taken from the PLC of the compressors
5. Ken’s idea - calculate the normal heat generated by compressing a given volume of air – and apply this to the flow of compressed air – does the temperature rise across the individual elements make sense? For the compressors a source of flow may be the CAGI data sheets. This could then be compared to the heat rejected from the cooling system down the line.
6. Write up idea for FYP/thesis regarding the creation of a tool to optimise the configuration of a compressed air system with respect to installed receiver size and installed compressor power. Further scope for this could be to analyse the cost benefit analysis of installing extra receiver capacity to use more renewable energy where possible – where is the tipping point? Tell Dominic that Michael Cronin is interested in this, maybe we could approach this like in industry, get the Pharmacy building to sponsor the project with a view to resizing their installed compressor power – and maybe then they could fork out for a compressed air flow meter which would be great for us. Included in the scope of this is to create a Modbus network with the additional temperature sensors I think would be good to have, and a flow meter if we can get someone to pay for it. This project can be incorporated into the IERG Physical and Virtual Model by demonstrating the overall reduction (e.g. per day or per month) in grid electricity usage achieved by moving from a larger compressor to a smaller compressor with an increase in receiver capacity. The “Reactor Vessel” could potentially be used as the model for a large receiver, and a smaller toy compressor be used to show physically the reduction in compressor size and increase in receiver capacity. The dashboard would then show the effects the change has on power consumption. Project to include full mapping of Pharmacy CA usage.