

Design of a data acquisition system to the study performance of wood-powered combustion equipment

Design a data acquisition system to investigate performance (temperature, efficiency, pollutant emissions) from a retrofitted, cleaner-burning wood-powered water heater. Existing wood-fired water heaters tend to emit large quantities of pollutants, especially particulates (smoke). A small business has developed a prototype kit to retrofit wood-fired water heaters, converting them to more efficient devices with two combustion stages, for better performance. The M. Eng. project involves designing a system to acquire temperature, flowrate, and pollutant data in the prototype, over the 2016-17 heating season. The project will involve travel to the facilities of the small business, near Buffalo.

DESIRED QUALIFICATIONS: familiarity with heat transfer, fluid mechanics, and thermodynamics. Desirable, but not necessary: experience with data acquisition, lab experiments, machining, hand tools.

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