# CPSC 471 - Project Proposal

## Introduction

In the oil and gas industry, flow meters play an important role in the measurement of the flow of oil, water, steam, and liquid natural gas. The flow of these aforementioned commodities are reported to the authorities in order to determine royalty payments and emission taxation. The measurement of the flow contains a variety of parameters including the diameter and materials of the pipes, the flow temperature and the pressure, all of which are required for audit trail compliance.

Instrument engineers in any major oil and gas company face problems of managing flow meter data, and to ensure measurement calculation correctness as well as accuracy. There are various flow management softwares available in the industry that provide the storage and access of flow meter data, but often this software is expensive and hard to personalize according to the company’s requirements. Our goal is to create a database to store information pertaining to flow meters installed at various sections of a small oil and gas plant. The web interface linked to the flow database will provide easy read and write access to the flow data. The motivation behind this project is to provide a cheap and personalized alternative to various flow management systems in the market.

## Problem Definition

The instrument engineers in the industry require fast access and storage to flow meter information for usage in their calculations. Current software such as FlowTek provide read and write access to the flow data, however FMS (Flow management softwares) are very expensive and hard to maintain. Furthermore, most companies find it hard to personalize the softwares according to their needs, and they usually have to create a separate job position in order to maintain these management systems.

## Proposed Solution

Our proposed solution provides a cheap alternative to the flow management software available. Our goal is to build a relational database which will store information measured from the flow meters installed in different areas of an oil and gas plant. We will provide read and write access to the end users of this application. This will be done through a web page that provides dynamic access to the relational database. The web page will have different filters corresponding to the entities of the database. Users of the webpage will have access to a different implementation of the scripts according to their privilege access levels, which are set by the administrator. Our application delivers a system where the users can retrieve and display information through the use of filters, update the database, and download information in .csv file format.

## Motivation

Our motivation for this project as stated above is to provide a cheap and easy to use application for the end users who do not have to spend too much time learning how to use the system. It is cheap and can be personalized by the users through the addition of their own scripts and filters to get the desired results. This is unique because most software systems have a strict convention that they follow which does not allow the end users to modify the program according to their specific needs. This project can be implemented on a larger scale and most companies have adopted this style of implementation.

## Conclusions

The mini flow management system that we will be delivering will have a very basic yet powerful interface that does every basic task that a high-end management system like FlowTek provides. We will be providing a conceptual model with an EER diagram by the 17th of February and an implemented relational database by the end of February. From there we will start to implement the functional programming and the deliverable system. We plan to have the system fully implemented by April, with it only needing a few final touches after that.