The following is a summary of the final deliverables related to the Final Term Project for GPGN590A:

All the final material is available at the following GitHub repository:

<https://github.com/jamesbcarmichael/GPGN-590A-Final-Project-Instrumental-Designs_Proposed-Remote-Controled-Flowloop_-Proto-type->

It is highly suggested that before accessing the space, a user new to GitHub should create a user account and any borrowing or building upon of the contents acknowledge the effort (prior coding, images and design) of those that previously influenced the project(s) previously.

Within the primary <> Code tab/space:

* *README.md* (extension markdown) file is available for viewing to understand:
  + the primary *Geoscience Motivation*
    - which includes publications that inspired the work
  + *Advantages* (offered by the design of the proto-type and the problems it aimed to solve)
  + *Cost* (approx. range/estimate- this could alter over time for future work with inflation, shipping, or supply/demand issues)
  + *Code explanation* (please note we offer 4 different codes for the design)
    - One- basic function to introduce the functionality of internet control [Project23\_Internet\_Controlled\_LED]
    - One- test basic implementations of relay. delay time can be altered within the script (this step/code is without any need of network/internet connectivity) [8ModRelayTest\_DelayedOn\_OneAtTime]
    - One- is the code to open/close all valves simultaneous via internet(ethernet) [Simul\_Internet\_Controlled\_Valves]
    - Lastly- is the code to open/close each individual valve with certain time delay via internet [8ModRelayTest\_FIreFighter]
  + *Implementation plan* (material checklist) – literally a checklist that a user could follow to recreate/build upon prior design
  + *Possible additional elements*
  + *Caution* (notes for future users of what hazards this project entails, yet not limited to- there may be others that we just did not consider or contend with during our implementation)
    - *Pressure concerns* (mainly led to leaking connections, but combined with next bullet concerning
    - *Electrical hazards*
  + *Hardware Wiring Diagram* (specifically there are two that correspond to the last two codes offered
    - For simultaneous control [Simul\_Internet\_Controlled\_Valves]
    - For delayed individual control [8ModRelayTest\_FIreFighter]
  + *Materials list* (this time with pricing as well as some images, available in prototype\_photos as well, to aid in recreation of the prototype design (these are also available in a slide deck upload on site as well) Please note while we had a mini loop within the larger loop, the same materials could be reconfigured in various ways (example downward stair steps or multiple downward stepping lo
* *Additional content*
  + *Prototype\_photos* FOLDER
    - 1.jpg, 4.jpg, 5.jpg, 7.jpg, 8.jpg,
    - valve.jpg – not an exact match to what you may see in photos, slightly different fittings and metal, however so long as compatible with the pipe diameter used and threading fit for easier building few need of convertors/conectors
  + Scripts FOLDER
    - Repository for all coding scripts provided and compatible for Arduino programable boards (ideally Mega, but should work for Uno)
  + 2022-02-15-Team Edgar Mine Proposal.pdf – provided to clarify original goals and insight on potential mechanism (such as utilization of cell or wifi networks) to communicate with site
  + 2022-05-08-Summary of Final Deliverables-Final Term Project for GPGN590A-Carmichael, Li
    - This file you are currently reading to act as a table of contents (while no GitHub doesn’t organize it first in repository, still worth keeping open while working on any reconstruction or just viewing project’s Github content)
  + Proposed Remote Controlled Flowloop (Proto-type)\_without\_demo.pptx
    - Final project presentation slide deck, unfortunately embedded video had to be removed GitHub has a file upload limit of 25MB, the standalone video also can not fit within repository, but slide deck with embedded video was uploaded on canvas for viewing and grading
    - Delay.jpg - wiring diagram to work with [Simul\_Internet\_Controlled\_Valves] code
  + Simul.jpg - wiring diagram to work with [8ModRelayTest\_FIreFighter] code