Drive Selector - Application Development Requirements

# Overview

Configurator is an application for DC/BLDC machine analysis based on the customer load points (voltage, speed, torque and temperature). The frontend should be developed from the scratch, relying on the requirements of the IDS [1,2]. The backend should be updated and documented. Furthermore, new functions should be added. Both, frontend and backend should be modularly developed so that further developments and extensions are possible.

The backend should be python based (flask) and the frontend java-script based (ReactJS). It should be analyzed if docker container is an appropriate solution to simplify the deployment.

# Basic Requirements

Analyzing the presentation provided by the IDS the following phases and features are to be implemented:

* **User Management**
  + Sign Up / Sign in
  + Change/Reset Password
  + Forgot Password
  + Last Login
  + Number of Logins
  + Users page (listing all the users)
  + Add / Edit User page
  + Delete User
* **Machine Management**
  + List all machines (machine view)
  + Add new machine. The data needed is given in [3, 4].
    - Should some data be saved as well (. STEP, .PNG, .CSV)?
    - Try to read the data from given PDF [3, 4]. Assume the PDF is identical for all machines
  + Edit / Delete Machine from the DB
* **Configurator page**
  + Enter load points (voltage, speed, torque and temperature)
  + Possibility to read load points from excel file?
  + Calculation of the performance provided by Bühler Motor! (Integration and visualization done by the customer)
  + Performance analytics representation (PNG images from backend by Bühler Motor)
    - Visualization / listing of the favorable motors based on input
      * If even 1 load point is achievable select the motor as a potential application
    - Visual / tabular representation of the motor performance calculation
    - Graphical representation of the entered load points (also the one which cannot be achieved.
  + Deployment (docker?)
  + Maintenance?

# What Should be Provided

Bühler Motor should work on implementing the machine performance estimation based on the catalogue motor data (MoTool). This performance estimation will be used on order to filter the potential motors. The corresponding API should be provided by the simulations department.

During the development the simulations will be the main contact for Q&A sessions.

# General Information About Design

The design is not needed in the first phase. It is recommended to follow good UX practices providing the good user experience. As initial guidelines the configurator provided by Faulhaber can be used.

The backend should be based on the newest python flask versions. All visual representations of the results should be done on backend, preferably using the matplotlib python library.

# References

[1] IDS requirements 2022-12-27\_Request for a Drive Selection Tool\_IDS.pptx

[2] <https://www.faulhaber.com/de/drive-calculator/>

[3] Example1.pdf

[4] Example2.pdf