TRI-ELECTRODE FUSHOKU TEST KIT

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1.0 BACKGROUND OF THE STUDY

CORROSION

2.0 PROBLEM STATEMENT

- General test rig is not feasible since the test must be setup manually and it required more time.
- Commercial potentiodynamic test rig is not flexible since it can test certain shape of material or sample only.
- Commercial potentiodynamic polarization technique has a safety issue risk since the beaker for the experiment not very stable and easy to fall.
- The price for a current test rig is expensive

3.0 OBJECTIVE

To design and develop an automatized corrosion test kit based on electrochemical-cell setup.

4.0 SCOPE

- Three electrodes corrosion test kit
- Equipped with cell container (500 ml to 1000 ml
- Table Top type test kit
- Lightweight and stable
- Portable test Kit

5.0 CURRENT DESIGN

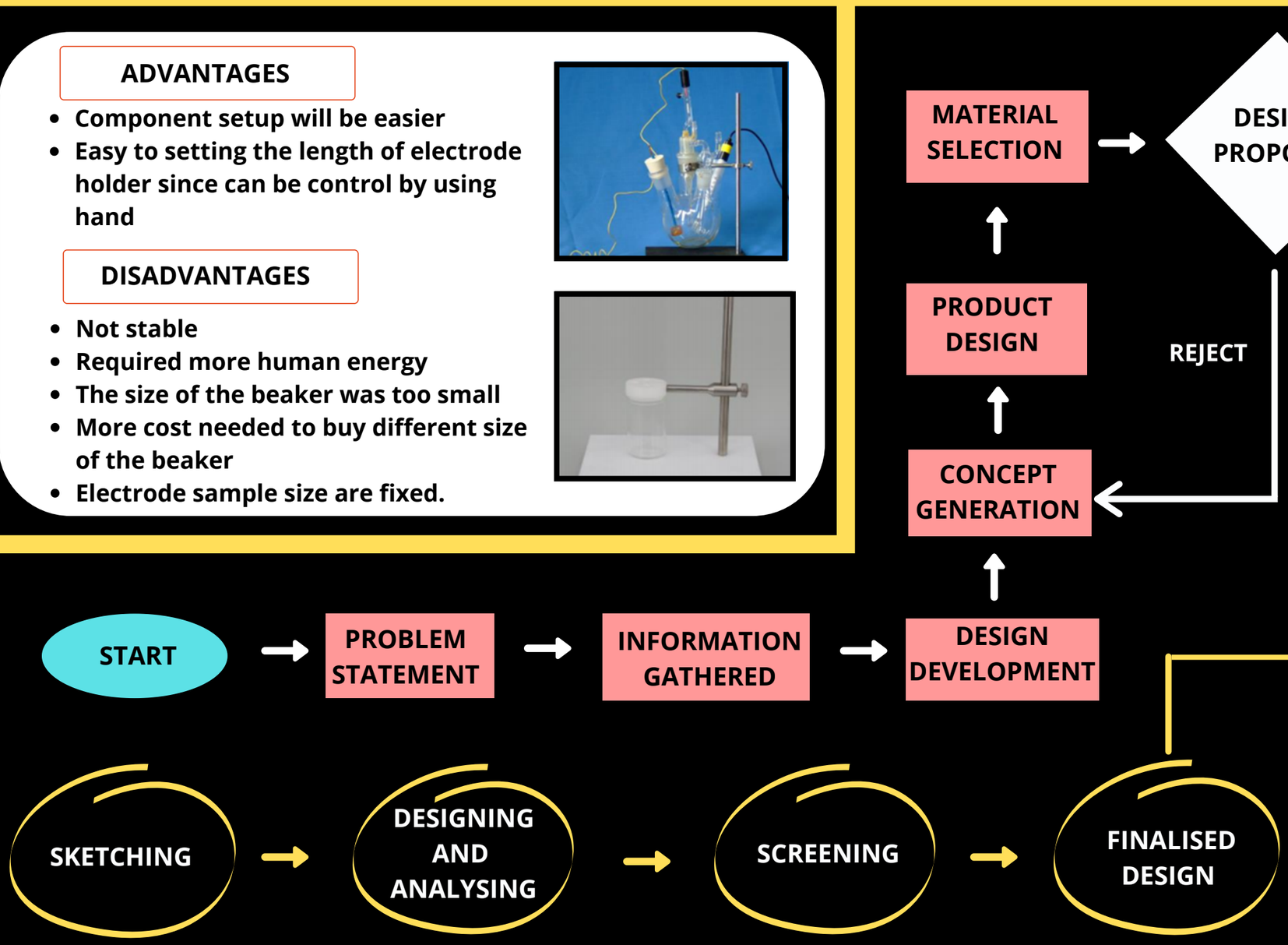
ADVANTAGES

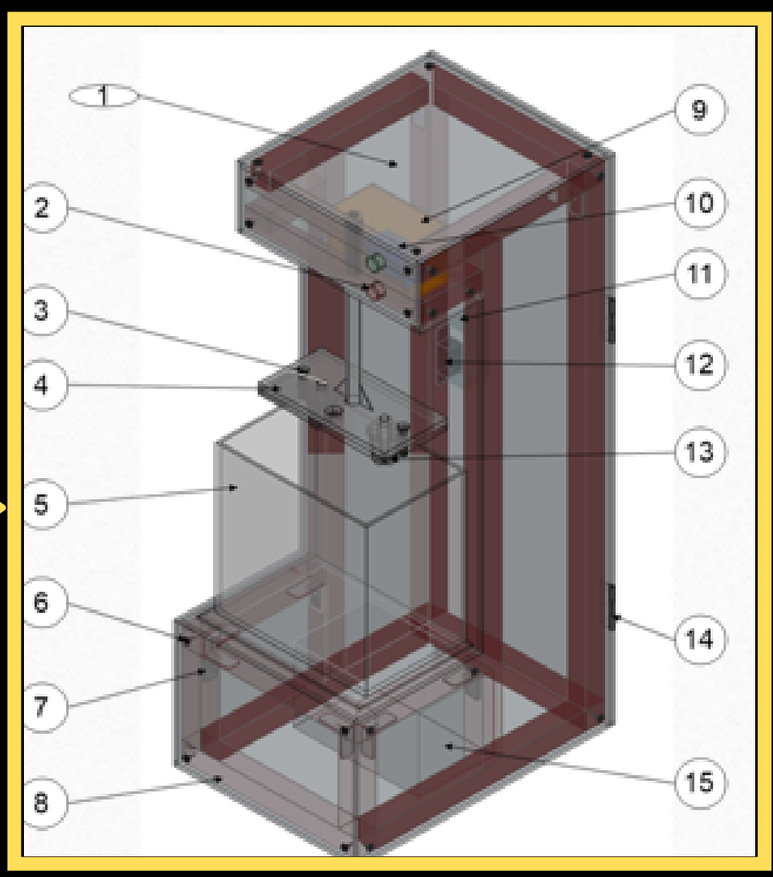
- Component setup will be easier
- Easy to setting the length of electrode holder since can be control by using hand

DISADVANTAGES

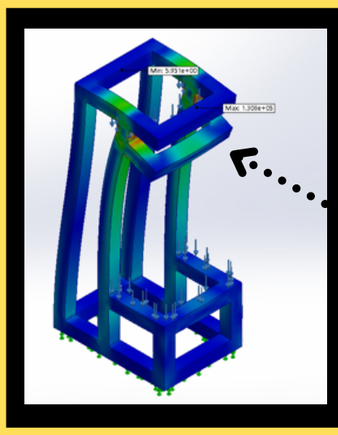
- Not stable
- Required more human energy
- The size of the beaker was too small
- More cost needed to buy different size of the beaker
- Electrode sample size are fixed.

6.0 METHODOLOGY





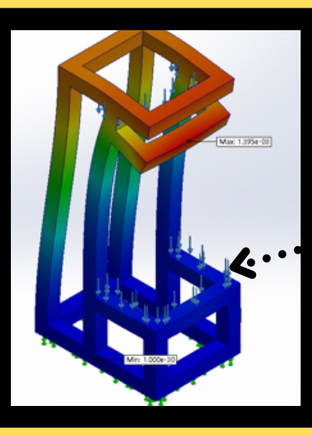
7.0 RESULT AND DISCUSSION



- Frame
- Stress test

Max:

1.308e+05 N/m^2



- Frame
- Displacement

Max:

1.395e-03 mm

This project design is created to reduced the time and energy used for the researcher to assemble the current component for this test. According to the researcher in Malaysia, this test was very expensive and must be order from the supplier where the component was supplied from the outside country. Based on that, we have come out with our product design which is more stable and the size of the beaker is bigger than usual size which is more convenient than current beaker,

8.0 CONCLUSION

According to the result, it is has been proved that the objective of our project can be achieved. Automatized linear movement of actuator by motor driver can be applied in our project. Hence, as the future engineer we hope that we could solve any problem regarding this test so that user can perform their corrosion test easier.

9.0 REFERENCES

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COLLABORATION