


# BAKOENA EDWARD LEQELE

Mechanical & Mechatronics Engineer ~ Civil Engineer Technician

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## SUMMARY

Highly motivated and versatile engineering professional with a strong foundation in Civil Engineering and Mechanical and Mechatronics Engineering. Equipped with a unique interdisciplinary skill set, combining expertise in both civil and mechanical engineering, along with a passion for mechatronics systems and automation.

## SKILLS

**Languages:** Python, C, C++, JavaScript, HTML, CSS, LaTeX.

**Technologies:** Git, PCB Design, SolidWorks, Fusion, Web Design, Oscilloscope, Multimeter, Power Supply.

## PROJECTS

### PCB Design/C/C++ **Confidential Vehicle Tracking and Security System**

Firebase

Developed a comprehensive vehicle tracking and security system as part of a team project, incorporating advanced biometric authentication and access control measures.

### PCB Design/C/C++ **Confidential Wildlife Tracking project**

Played a key role in the development and construction of a specialized device for sensing Koalas in their natural habitat.

### Transformer maintenance, welding **Electrical Transformer Servicing and Training**

Completed an internship at a reputable organization servicing electrical transformers. Also assisted with repair of various machinery, maintenance by welding, annealing and soldering.

### Web Design, HTML, CSS **YouTube Clone**

Available on My Portfolio website and Github

Built a fully functional Youtube clone following a Youtube tutorial by SuperSimpleDev

### Troxler, CBR, Concrete Testing **Civil Engineering Laboratory Testing and Concrete Mix Design**

Built a fully functional Youtube clone following a Youtube tutorial by SuperSimpleDev

## EDUCATION

1/2019 - 12/2023 **BSC. Eng Mechanical and Mechatronics Engineering**  
Cape Town, South Africa

University of Cape Town

6/2015 - 6/2018 **National Diploma in Civil Engineering**  
Maseru, Lesotho

Lerotholi Polytechnic

01/2010 - 12/2014 **Lesotho General Certificate of Secondary Education**  
Maseru, Lesotho

Abia High School

## EXPERIENCE

### 11/2022 – Present **Hardware Engineer**

Nuvetech

- Developed hardware and firmware for projects undertaken by Nuvetech, both for internal and external projects.
  - This included PCB and schematic design.
  - Testing and quality checks on PCBs.
  - Develop and upload firmware for on the electronic boards developed.
- Managed Nuvetech hardware libraries where required.
  - Keeping up to date with current projects.
  - Keeping up with deadlines to ensure project deliverables on time as per client's requirements

PCB Design / C/C++

### 6/2023 – 7/2023 **Mechanical and Mechatronics Engineer Intern**

Nuvetech

- Assembled electronic boards, this included surface mount components and through hole components.
- Performed quality control and fault finding on electronic boards.
- Developed and uploaded firmware on electronic boards.
- Researched best solutions for various projects including which approach should be used to best meet client's requirements.

LoRa / Soldering / Arduino / STM32 / RaspberryPi / C/C++

1/2023 – 2/2023    **Mechanical and Mechatronic Engineer Intern**    **Lesotho Electricity Company**

- Performed transformer maintenance by changing transformer oil, checking conditions of tap changers and its supporting parts(eg upper gear and lower gear), changing the grease in the gears.
- Performed Mechanical Engineering workshop processes using a lathe, grinding, milling machine, drilling machine, welding(Arc welding and tig welding), Soldering, fitting etc
- During my time at Lesotho Electricity company, we also designed and built a simple press machine.

Welding   /   Lathe

08/2017 – 01/2018    **Civil Engineer Technician Intern**    **Civil Engineering Laboratory**

- Performed quality control on civil engineering projects
- Performed soil tests including operating a troxler to determine soil density and moisture content and also performed CBR test, Sieve analysis on soil etc.
- Performed concrete quality control and testing including concrete cube preparations and test, slump test etc.
- Performed site investigation which entailed finding out the type of soil available on site and taking samples for lab testing.
- Documentation of results including geological maps.

Troxler   /   Excel   /   Compressive Strength Tester

## LANGUAGES

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**English** - Fluent, **Sesotho** - native