Christopher Bartonjo | Resume

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I am a self-motivated, honest and cooperative person. I am quick to grasp new ideas and concepts. I am open to learning and guidance.

Previous Employment/Work Exposure

Consultant — **LocateIt**
GIS consultant — *Febrary 2024 - present*

Helped develop the Land Information Management system (LIMS) for the county government of Wajir Wajir LIMS. This enables users transact matters land e.g parcel registration, land transfers, land encumbrances, land rates, survey and planning.

Consultant — **LocateIt**
GIS consultant — *December 2024 - February 2024*

Helped develop The Integrated Rangelands Monitoring and Management Tool for north eastern Kenya (Wajir and Garissa countries). This project was mainly about monitoring drought, precipitation, soil, river level monitoring livestock routes and invasive species like "Mathenge" plant. I developed the Geo portal

Consultant — **THORIUM**
GIS consultant — *November 2024 - Present*

Worked on the backend and fronted of receiving customer Identification survey data for Kisumu Water and Sanitation Company Limited (KIWASCO) under lake Victoria South water project. This involved sending enumerators to the field with questionnaires and them uploading filled form data for analysis. The output will include statistics about KIWASCO's customers e.g location, type of connection, connection status etc presented in a dashboard for ease of consumption.

Consultant — **GAIA clubs (Ghana)**
IOT expert and trainer — *Jan 2024 - October 2024*

Worked on custom training circuit boards with low power capabilities for learners under GAIA clubs an initiative of Edenway foundation which is a consortium under GMES and Africa and sponsored by African Union , European Union and GMES and Africa. I am also responsible with capacity building and advising the team on direction to take when investigating marine and fishing issues using IOT and validating earth observation results via remote sensing using satellite imagery with ground data. I also wrote the firmware that runs the boards.

Consultant — **Melvin's tea**
Mechatronic/IOT Engineer — *July 2023 - November 2023*

Created an RFID machine authorization with mobile moeny payment (MPESA) module for tea vending machine, The module used the multidrop bus protocol (MDB) used to standardize communication across vending machines.

Consultant — **Runda**
Mechatronic/IOT Engineer — *September 2022 - December 2022*

Build a smart home automation system involving lighting schedules, scene switches, alarms, smoke sensors, light sensors, using smart hubs like Hubitat, Samsung smart things and protocols like zigbee and z-wave. Actions could be performed remotely and actions can also be scheduled.

Consultant — **Nairobi**
Full stack — *April 2022 - December 2023*

Build a ride sharing app for android platform using Quasar for the user interface and Kotlin for native functionality including push notifications, http requests, geolocation and web socket connection. The apps comprise of:

- Rider app for riders to book listed rides.
- Driver app for drivers to schedule and list rides.
- Partner app for car owners to onboard their cars to the platform.

I also build the back end server using a combination of nodejs and python, custom email server and a custom direction and routing engine (Openrouteservice) and an admin dashboard using vue.js javascript framework. The backend services run on docker.The platform is called sqdgo.

Consultant   **Nairobi**
Front End/Software Developer   *December 2021 - September 2023*

Worked on Agiza PWA ordering app for EABL and Diageo through Finplus group. It is a business to client application where one can order drinks.The app includes security features like Nonces, payload encryption and rate limiting

Consultant   **Nairobi**
Front End/Software Developer   *November 2021 - Present*

Worked in MISLAND project where it is a GIS web system that uses remote sensing satellite images to do land degradation analysis, The web app has maps, authentication, file upload rich text editor among other tools to enable a full user interaction.

Consultant   **Nairobi**
Mechatronics/IOT Engineer   *June 2021 - August 2021*

I designed, programmed assembled low power tank level sensor using pressure transducer using the 4-20ma current loop protocol to send continous intervaled readings of the water tank level. I used Lorawan protocol to send the data to a custom backend that can handle things like threshold limits and alerts besides data visualization inform of charts. It involved designing the sensor board and the concentrator (gateway with internet backhaul), backend with database, business logic (decoding the payload, setting thresholds) and Role-based access control and a frontend to visualize the data.

Consultant   **Nairobi**
Software Engineer   *July 2021 - February 2022*

I Worked on Tropical Forest Surveillance Monitoring and Assessment in the IGAD Region (TROFMIS) were we were monitoring the forest covers and products like carbon emission, forest change and forest canopy density. This project was funded by AU. EU and GMES and Africa.

Consultant   **Nairobi**
Mechatronics/IOT Engineer   *June 2021 - August 2021*

I designed, programmed. tested, assembled and installed a tank level monitoring system which synchronized with a Reverse Osmosis (RO) system in terms of deciding how many RO systems show run depending on how many tanks require water. The reason for this system was to avoid damaging the membranes from back pressure when the inlet valves of the tank were closed.

Consultant   **Nairobi**
Software Engineer   *March 2021 - July 2021*

I Worked on Wetland Monitoring and Assessment Service for Trans boundary Basins system for Southern Africa countries . This is yet another European Union and African Union funded impact project that I was part of where I was still in charge of the front-end. I used Vue.js, Leaflet and followed the Open Geospatial Consortium (OGC) standards in requesting and representing the data from the back-end.

Consultant   **Nairobi**
Software Engineer   *January 2021 - April 2021*

Built the front end for Donyomart listings platform and also added a backend using elastic search for full text searches and advanced filtering. I was tasked with building a front end application that would easily be converted to android and Ios apps. The app was initially using Firebase as the back end but later we added nodejs and elasticsearch since Firebase does not natively support full text search. I Used Vue js and the Quasar farmework for the frontend and express and elastic search on the back-end and hosted the system on Upcloud with PM2 as the process runner and logging tool.

○ **Consultant** **Nairobi**
Software Engineer/Mechatronics/IOT Engineer *February 2021 - Present*

Built an IOT API using nodejs, mongodb and mqtt, with graphql and swagger documentation. The platform has role based authorization and jwt authentication. The back end is modular with discrete functions to handle users, telemetry data, alert system and a prepaid billing module since We have smart meters that closes automatically when units bought are depleted. The top-pup is done via mobile money integration. The api is meant to be generic to IOT devices I have designed and any consumer can build their own UI based on the swagger documentation with the option of either using REST pattern or graphql.

○ **Consultant** **Nairobi**
Software Engineer *October 2020 - February 2021*

Visualized and Land Degradation data and models for North African Countries (OSS) . I was in charge of creating the UI to select indicators and making requests to a GeoDjango back-end then visualize raster layers and statistics after the parameters selected were analyzed against the region of interest. Here, I was using Vue.js and Leaflet to create the map interactivity. Major features were; processing GeoRaster images, Role based authentication and a feedback system for the users. This project was funded By European Union and African Union

○ **Upande** **Nairobi**
Mechatronics/IOT engineer *November 2017-December 2020*

Development of IOT infrastructure and end devices. At Upande, I got to learn about Internet of Things and the protocols used. I was Primarily designing embedded devices circuits using tools KiCAD and EasyEDA, then program the devices using C/C++ and MicroPython,I would then receive the telemetry data from the devices in a nodejs server using MQTT protocol, process the data by decrypting and decoding the packets using Nodejs and python. I also built user interfaces using Vue.js to visualize the data. I also worked on a face recognition system using raspberry pi's and OpenCV to track flower farm workers as they come in and leave the farm. I also used third party apis like the AfricasTalking SMS service to send alerts for temperature thresholds and hourly alerts for tank water level for the Kisumu city water supply company.

○ **Nailab** **Nairobi**
Arduino and robotics Trainer *December 2016*

I trained students on arduino programming and robotics. I was tasked with coming up with a curriculum that would run for a month while schools were on holiday that would be engaging to kids between 9 years to 16 years and build their interest in STEM fields.

Education

Academic Qualifications

○ **Jomo Kenyatta University of Agriculture and Technology** **Juja**
Bsc. Mechatronic Engineering *2012–2016*

○ **Institute of Software Technology** **Nairobi**
Java Programming, Level 1 (core java) and Level 2 (j2ee architecture and JSP). *2011–2012*

○ **Sacho High School** **Kabarnet**
KCSE, Attained an A of 83 points. *2007–2010*

○ **J.K Moi Primary School** **Koibatek**
KCPE, Attained a mean grade of B+. *2003–2006*

Notable Projects

- **The Bar**
  Drink ordering Platform by EABL and Diageo. The project can be accessed here **The Bar**.
- **MISLAND** Land Degradation monitoring platform for Northern Africa region the project can be accessed here **MISLAND**.
- **LaSWE** Land Susceptibility to Wind Erosion in Eastern Africa (LaSWE) is another GIS based application funded by EU,AU and GMES to monitor and track soil erosion caused by wind and water, It is hosted and managed by The Regional Centre for Mapping of Resources for Development and accessed here **LaSWE**.

Technical and Personal skills

- **Programming Languages/Frameworks:** HTML,CSS, JavaScript, Kotlin, Go, Python, PHP, C, C++,SQL.
- **Mechanical/Design Skills:** SolidWorks, Inventor.
- **General Business Skills:** Good presentation skills, Works well in a team.
- **Hand Tools:** Good soldering,Drilling and spot welding skills.
- **Electronic and electrical skills:** PCB Etching, Proteus ISIS, KICad EDA skills.

References

- Luchiri Omoto
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  AfricasTalking

- Lynn Sellanga
  Senior Operations Manager
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