RESUME

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Fluent in English and Kiswahili

EDUCATIONAL BACKGROUND

JAN 2012- DEC 2018 Technical University of Kenya

- Diploma in Electrical and electronics engineering
  (Instrumentation and control option)

PROFILE

I am a highly innovative, creative, self-motivated engineer with a great enthusiasm and determination to improve and solve problems using the engineering skills that I've acquired. I'm resourceful with an eye for detail and can adapt quickly to new environments. I am trustworthy and hardworking with excellent communication skills. I have already designed, fabricated n sold systems for entertainment, surveillance and smarter work asset management system.

SKILLS AND EXPERIENCE

- Mechanical Computer Aided Design (AutoCAD, SolidWorks, 123D, FreeCad, Fusion360)
- Software programming (Java, JavaScript, HTML, CSS, AngularJS)
- Hardware programming (C, C++)
- Circuits design using CAD (Proteus), fabrication and testing.
- Computer and electronics repair and maintenance.
- Control of induction motors using Siemens Sinamics G120 control unit.
- Fabrication of mechanical parts
- 3D printing and maintenance.
- Vehicle engine servicing and maintenance
- Welding
- Vehicle Driving

PROJECTS THAT I CREATED IN THE PAST 10 YEARS

Self-defense gadget (2009)

I designed it for personal protection against attack by thieves. It was small enough to fit in the pocket and it produced 317volts from a 1.5volt cell which is enough to electrocute someone easily. I used it in 2009 high school science congress exhibition and it took me all the way to Nationals level.

Dual twin blade helicopter (2010)

I designed a dual twin blade helicopter that has two rotors each with two blades. The helicopter is powered by two high speed brush motors and when powered with a 12v battery, it takes off but looses balance almost immediately due to lack of balancing control circuit. It could have been used as a surveillance system if improved on the electrical control circuit.

Semi-transforming vehicle (2011)

I designed and fabricated this prototype. It is a model of a real four by four vehicle that is fully electric. It is remote controlled and can open-up the body into several separate parts on its own and uses my phone as the camera to capture video and my laptop streams it real time. It has wide variety of applications like for surveillance, learning in institutions, as toys, as a security machine and as a real car. It won me "The best Young Innovator" award from NCST in 2012. Here is the link to YouTube:

https://www.youtube.com/watch?v=JZLu0CukCPo

https://www.youtube.com/watch?v=xrjc7Z5sSdY

Entertainment systems

Music driven lighting effects (Music DNA) (2013)

I designed a circuit that responds to music. As the music is playing, the circuit responds by lighting LEDs per the various levels of the music frequencies and one can see the music in the form of varying lighting. This creates a music driven environment. I have already sold one. Here is the link to YouTube:

https://www.youtube.com/watch?v=O4sgbsucSs4

https://www.youtube.com/watch?v=OJUFWWum4bw

Robotic systems

Walking robot (2013)

I designed the robot which I got its reference from the internet and was powered by three servo motors. It is controlled by an Arduino microcontroller.

Robotic arm (2013)

I designed and fabricated the robotic gripper arm. It could rotate and pick an object with a maximum weight of a kilo and was powered by five brush motors. It was used in 2013 Roboken contest at KICC.

Home lighting system (2014)

I designed and made this circuit that detects the levels of light outside the house and during the day, the circuit switches off the lights and opens the curtain and in the evening, it closes the curtains and switches on the lights. It can be used to save power used at home. I have already sold it.

Rover/Buggy (2017 to Present)

It is one of the creations that I have developed in partnership with a guy in US purely with CAD (AutoCAD and SolidWorks). It features a one and a half foot long all wheel vehicle that will have a camera on it and it will be sent to the jungle to take close-up snapshots of the wild animals. As of now, it is at the testing stage before we deploy it for real work. It has other applications like surveillance but that will come at later stage.

3D Crystal-QUAD Printer (2017 to Present)

I began working on this printer solely because of the Smart E-con wheelchair. I have spent the past 3 years trying to secure funding in vain. In Feb 2015, I ran a Kickstarter campaign for the Smart E-con wheelchair but got nothing. I ran another campaign on Indigogo in Feb 2017 still on the Smart E-con wheelchair and managed to get roughly $500. I kept it since it wasn't enough to purchase any useful part for the wheelchair that I am working on. On July 2017, I got this idea of making my own 3D printer that would enable me prototype the wheelchair faster and that's how the Crystal-QUAD 3D printer was conceived. It has 4 extruder heads that can print 4 identical parts at the same thus saving time four times!! I Ordered stuff from China with that $500 and began working on it early October 2017. It is at testing stage and it will be through in a month's time (Feb 2018).

Smart E-Con wheelchair (2014 to Present)

It is my latest innovation which features an electric wheelchair designed bottom up to offer extreme mobility, independence, comfort and happiness to the physically disabled. It has a new mechanical design that I have already patented and still a work in progress.

It was selected among 16 other African innovations by the Royal Academy of Engineering in 2016/2017 Africa Prize for Engineering Innovation competition.

http://www.raeng.org.uk/news/news-releases/2016/november/new-generation-of-african-innovators-recognised-by

https://www.theguardian.com/global-development/2016/dec/25/kenya-creativity-broadens-employment-horizons-disabled-people-africa-prize-for-engingineering

https://www.youtube.com/watch?v=U5b0i2Lh51g

https://www.youtube.com/watch?v=tGr6RIiDIf4

WORK EXPERIENCE

March 2017 to Present – Director/Founder, Voltarent Engineering Ltd

Achievements

- Smart E-con wheelchair redesign and 3D printing (Currently in progress)
- Internet of Things devices for water various environmental data collection.
- Wildlife buggy with mounted camera for photo and video capturing.
- Advanced Quad extruder 3D printer.

October 2014 to 31st March 2017 –IBM Research Lab East Africa

Intern working in water team

Achievements

- Hardware circuit design, fabrication, testing and deployment.
- Hardware programming for the controllers (C, C++)
- Troubleshooting device code for bugs.
- Troubleshooting devices for deployment.
- Designing devices to be used in the field (Farms with water tanks) to collect water usage data.

Mobility team

Achievements

- Designed cases for mobile devices.
- Deployed devices in vehicles for data collection.
- Designed and fabricated a testing rig for mobile phone internal sensors
- Designed and fabricated testing rig for testing Inertial Measurement Units

Healthcare team

Achievements

- Software programming for data UI (, Java, JavaScript, HTML, CSS, AngularJS)

January 2014 to August 2014 - Centurion systems

Intern in motion lab

Achievements

- Basic commissioning of Siemens sinamics G120 control unit
- Induction motor speed control using computer and the G120 control unit
- Varying induction motor speeds using VFIs
- Controlling industrial servo motors using computer

February 2012- March 2012- Solant engineering

Intern

Achievements

- Cleaning of engines
- Servicing earth moving machines
- Replacing crank bearings and identifying tear and wear and transmission maintenance

INTERESTS AND ACTIVITIES

- Innovating using technology.
- Off-road cycling.
- Watching technology-based movies.
- Listening to music.
- Taking a walk in the park.