

Vested Interests Zimbabwe: Robotics



Vested Interests Zimbabwe
Igniting your Dreams

Ephraim Mwanda

Vested Interests Zimbabwe

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Igniting your Dreams

Vested interests Robotics Course Outline

This course is designed for an age group of 12 years and above. It does not require any special school, qualifications or skills. That said one can learn this course with little to no background in physics and/or computer programming.

The syllabus and the contents of the syllabus was compiled using the research and teaching tools as those used in Great Britain and united States Of America and many more first world countries. For more information on the teaching skills and platform please visit www.raspberrypi.org.

The course was designed to last a total of 25 hours. 20 class hours and 5 hours left for the individual student to spend researching and doing homework and side projects. Each lesson is 1 hour 30 minutes long making a total of 13 lessons for a standard class or group. For special types of classes, lessons will defer depending on the available time.

What you are expected to learn by the end of this course:

- What is robotics and why it is beneficial to you in our daily lives
- How to apply robotics in our lives homes, schools, work, agriculture etc.
- How to plan, make(build) and run an actual robot
- Learn circuitry and electrical components used in robotics

What you will do or build in this course:

- Blinking LED
- Traffic lights with a display system(commonly known as MaRobots by Zimbos)
- A computer controlled DC motor(commonly known as propela by Zimbos)
- A wheeled robot
 - That runs with a remote
 - avoid obstacles automatically
- A humanoid robot
 - That sees
 - Walks
 - Talks
 - Avoids obstacles such as walls and objects

Lessons in to follow in our course (Tabular form)

Lesson number	description
Lesson one:	Introduction to robotics : ▪ Raspberry pi ▪ Arduino First robotics exercise, design and program a blinking LED
Lesson two:	Introduction to programming ▪ Arduino programming ▪ Scratch ▪ Other types of programming languages
Lesson three:	Introduction to robotics circuitry: ▪ Build and program traffic lights to our own specifications
Lesson four:	More robotic circuitry : Display Screen ▪ Improve on our last lesson circuitry and code ▪ Add a display (Screen) to our last lesson circuitry
Lesson five:	More robotic circuitry : DC motor ▪ Build a circuitry that controls the speed and direction of a DC motor
Lesson six:	Our first Project: Wheeled Robot ▪ Using the knowledge we would have acquired in our previous lessons ▪ For the wheels and direction we will use the knowledge from the DC motor lesson ▪ It will have additional features like a display system to show the speed at which it is travelling and we will use the knowledge from the display screen lesson ▪ It will have lights and we will use the knowledge from the traffic lights class
Lesson seven:	Our first project continuation ▪ Students will need to revisit their pervious lessons to solve the project problems
Lesson eight:	Completion of our first wheeled robot and summary of the things we learnt throughout the project.
Lesson nine	Second project: Humanoid Robot Advanced robot.
Lesson ten	Continuation of Second Project: humanoid robot
Lesson eleven	Completion of Second Robot: Humanoid Robot

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Lesson twelve	Overall review of the course and exam preparation. A “what now” section; give you your options on what you can do the new found knowledge.
Lesson thirteen	EXAM minimum 50% to pass and earn a certificate
Homework and projects	These will be given and designed to make the student engage and have the mentality to explore the unlimited knowledge available on the internet. It will also give the student to notice areas they are still lacking and hence get appropriate help on an individual level. This way a student is not spoon fed through the course

At this point the course will be complete

For those who want to read ahead go ahead and read about raspberry pi and Arduino. This information is found in abundance all over the internet. Background knowledge will help greatly in this course.

Thank you for reading this document

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If you have any questions or quires email me on ephraim.mwanda@gmail.com

Or contact me on Whatsapp +263 773 066 848, +90 533 8533 804

Ephraim Mwanda of Vested Interests Zimbabwe