

# RELEVANCE OF EMBEDDED SYSTEMS IN AN EMERGING ECONOMY

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# The state of Global Economy



- Today's' Economy is Knowledge driven.
- Rich countries are no longer those that have natural resources, but those who possess the know-how and expertise to manage information and use knowledge to produce innovative products and services.

# Knowledge Economy



- In an agricultural economy land is the key resource.
- In an industrial economy natural resources, such as coal and iron ore, and labour are the main resources.
- A knowledge economy is one in which knowledge is the key resource.

# Computers as the Vehicle of KBE

- The vehicle of the knowledge economy are information machines i.e. computers and the network infrastructure that links them together.
- They enable people to create and process information and collaborate with others.
- Today, computers are embedded in everything. In phones, netbooks, washing machines, microwave ovens and even in automobiles.
- They are embedded in the nodes that make our network infrastructure function; like switches, routers, BTSs etc.



# How to prepare Nigeria for today's Economy

# Where we are today



- The developed countries of Europe, Japan and America are the centers of innovation and highly specialized manufacturing.
- The emerging countries of China, Brazil and India with their skilled and cheap workforce are the centers for mass production and have attracted investment from big multinationals like Intel and IBM.
- The only strategic importance of Africa today is as a source of Raw materials like metals and petroleum.

# Changes needed in the following sectors



- Education
- Industry
- Government
- Society

# Education



- ❑ Our engineering curriculum needs to refocus on imparting skills to students.
- ❑ There is need for emphasis on innovation.
- ❑ Students should be taught entrepreneurial skills so as to make them more imaginative and self employed on graduation.
- ❑ Laboratories should be equipped with modern equipment and staffed with high-skilled man power.
- ❑ Libraries should be supplied with the most recently published books and journals.
- ❑ Universities should collaborate with industries to create new products based on students' research projects.

# Industry



- The Nigerian economy is not yet advanced enough to have industries that are hungry for innovation and high-skilled man power. So it will be a little unrealistic to expect the industry to invest heavily in R&D. It is however hoped that we will move gradually in this direction.
- In the meantime, small and medium scale industries, such as Microscale, will need to arise and stimulate interest in high tech in the general citizenry of this country and in students especially. Such companies should provide products and services that make it easier for Nigerians to develop their ICT and technical skills.
- Microscale offers products and services designed to make it easy to produce high-tech products.

# Government



- The government needs to provide infrastructure that will help make the environment friendly to SMEs.
- The two most important infrastructures are Power and Information.
- Constant and reliable power supply as well as communications services, including cheap broadband internet is a basic requirement here.
- In addition the government should provide incentives to high-tech companies-- incentives like cheap loans and affordable Office space. And generally policies that are friendly to manufacturing and innovation. E.g: Buy made in Nigeria, R&D tax on telecoms operators.

# Society



- Popularize Science against superstitions
- Long term thinking (in hundreds of years for example)
- Tolerance of Freethinkers
  - ▣ When your believes are challenged



# Introducing Microscale Embedded

# Microscale's Mission



- Microscale's short term mission is to promote Microelectronics as a viable industry in Nigeria and to be a one stop shop for training, products, services and support required to produce a microelectronics product.
- We are also into in-house high-tech products development, Software development, manufacturing services and System Integration.

# Sowing the seeds...

- So far, Africa has remained largely a consumer of Technology products. We have very little contribution in terms of production. Whether it is the area of software design, hardware design or manufacturing.
- The aim of Microscale is to transform Africa from a consumer of Technology to a producer.
- We are profit making. Because, the effort has to be self-sustaining. And we hope to be the seed that germinates and gives rise to many trees that will become Africa's Microsoft, Intel, Apple and Google of tomorrow.
- Governments has a large role to play in this effort. But we believe, we as technologists, academics and entrepreneurs, we have to take the first steps. Lets sow the seeds first. Then we can call on the governments to help with the watering.

# What we have done so far



- Seminars in Nigeria and Ghana Universities.
- Contract Design e.g. Pre-paid Meters
- Corporate training: e.g. Aviation and IITA
- LED Displays

# Our University Program



- Training for Staff and Students
- Supply of Microcontrollers and development tools with support and training
- Industrial Attachment for students
- Collaboration with Universities on Student's projects to make them relevant to the needs of industry

# Our Services



- ❑ Online store: [www.microscale-embedded.com](http://www.microscale-embedded.com)
- ❑ Training
- ❑ Contract Design and Prototyping

# Products



- Microcontrollers from Atmel, Microchip and Cypress
- FPGAs and CPLDs from Altera and Xilinx
- Advanced ARM Development Kits with LCD touch screen
- Modules: GPS, GSM modem, Rf-transceiver, motion sensors, etc.
- PCBs: LED Display controller, Inverter




# About Embedded Systems

# Why is it difficult for a Nigerian Graduate to get employed?



- Jobs not available
- Graduates not qualified for the available job opportunities

# What is the biggest obstacle to starting a high-tech business in Nigeria?



- ❑ Poor Infrastructure
- ❑ Low supply of skilled man-power
- ❑ Lack of patronage

# How old are we on this planet?



- Six thousand years
- Over one million years



# Questions



Thanks