

OLPC FABLAB INTEGRATION WORKSHOP IN GHANA

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REPORT DOCUMENT

On the 28th of May, 2011 at 12:30 pm, three members from One Laptop Per Child (OLPC) Ghana met with the Fabrication Laboratory (FABLAB) team at the Takoradi Technical Institute (TTI) to discuss the integration of OLPC and FABLAB. The workshop was geared towards plausible approaches to future projects. The purpose of the meeting was to devise means by which the XO laptop could be utilized as a platform for administering FABLAB projects. Present at the workshop was also AAPG Member James Agbenorto, President (2008- 2010) African International Region and Petroleum Geologist for the Ghana National Petroleum Corporation. He made a presentation on "Environmental issues and geologic hazards related to processes like deep sea drilling."

The XO and FABLAB projects "Educational and Industrial Technologies" aim to strengthen collaborative initiatives, inventions and the training of IT and electrical engineering personnel as well as other team players.

OLPCorps Ghana has developed an *Integrated Management Software (IMS)* tool, based on the FABLAB technology manual *at the Takoradi Technical Institute*. The goal of this initiative over time would employ playfully creative people capable of inventing new possibilities for communities. The XO laptop would serve as a hub to generate concepts and ideas whereas the FABLAB infrastructure would facilitate (deploy) these ideas. An example describing this correlation

is utilizing Turtle Art (an activity/application on the XO) with a sensor attached to the XO to:

- I. measure resistance and temperature
- II. check heat of reaction, weak acid and base
- III. measure soil moisture
- IV. measure water salinity
- V. generate electricity from a changing magnetic field
- VI. create a remote door bell/burglar alarm

The following are XO-FABLAB objectives:

- The fundamental objective of the XO and FABLAB is to design and develop appropriate technologies in solving community problems and improving livelihood, through the application of high technology transfer and hands on skill training in computing and programming, digital fabrication and electronics.
- To serve as an incubator in business creation. The lab technology has room in diverse applications in problem solving. This concept is dubbed by MIT "***how to create thinking things.***"
- Take students through real life and functional projects which inject functionality into the learning activities of learners at the center. Interestingly the lab has room for community participation as well. This is one of the

cardinal principles of the founder of the FABLAB Technology.

- The objective of the FABLAB ties with the Mission statement and overall goal of Takoradi Technical Institute which is aimed at training skilled men and women for Industry and self employment towards the socioeconomic development of the Western Region and Ghana at large.

COLLABORATION:

- The Ghana FABLAB is among the group of over one-hundred-fifty Global Fabrication Labs in over thirty countries, such as the US, Norway, India, Netherlands, China, South Africa etc. Currently, with the integration of OLPC into FABLABs, a wider and broader scope of projects can be facilitated depositing a positive impact on communities in Ghana and the Western Regions of Africa.
- This collaboration no doubt has again projected Sekondi Takoradi and Ghana to a very high pedestal and more especially in this era of Oil and Gas discovery in the Region, where improvement in technology is a vital tool in socio-economic development of our Nation.

RECOMMENDATION ACTION PLAN

The deliberations in the workshop held at TTI resulted in the following recommendations:

- To promote ICT initiatives that will transform the cultural practices of traditional memory based learning to

educational practices that stimulates thinking and creativity.

- To undertake a training session for all departments of OLPC and FABLAB, in order for each team and other volunteering partners to learn and have the required knowledge and skills in the theoretical and technological designs and inventions of all projects.
- Our projection is to infuse these new hands on IT into Education and trigger the “can do buzz” that will empower the youth with the know-how in practical application of Information Technology in designing and fabrication, the basis for technological development.
- To enable students and people in the community have intelligent understanding of the increasing complexity of science and technology through systematic exposure in modern technology and correct the deficiencies and imbalances within the context of applied sciences and technology education.
- To promote the deployment and utilization of information, knowledge and technology within the economy and society as key drivers for socioeconomic development.
- To sustain and improve upon this new technology and to serve as a channel for business incubation

- Again team up with other Institutions of Research and learning to develop appropriate technologies that will help improved the standard of Ghanaian
- To start up an ultra- modern Laboratory that would be able to house both the infrastructure and equipments of OLPC and FABLAB. This may involve hard work, money and dedication.
- Approximately, having a very good structure in a very good location would require the sum of fifty to seventy thousand U.S dollars (\$50,000 to \$70,000 US) is needed in order to be able to start a complete FABLAB.

Equipments needed to start up a TTI elementary XO-FABLAB:

Tool	Purpose	Cost in \$USD
3D Mill and Scanner	Making PCBs and mechanical devices	3800.00
Vinyl Cutter	Precision knife cutting	2100.00
Oscilloscope	Electronic debugging	1300.00
Multimeter	Test and measurement	125.00
Function Generator	Test and measurement	250.00
RF Analyzer	Materials characterization	1250.00
UV-VIS Spectrometer	Materials characterization	200.00
Tower Kit	Everything	1000.00
Misc Supplies	Misc	1500.00
XO laptops [100]	Computers	20,000.00
Microscope	Monitoring and debugging	50.00
Digital Camera	Documentation and interaction	300.00
Flatbed Scanner	Documentation	125.00
		\$32,000.00

EVALUATION AND FOLLOW UP

This training workshop for both OLPC and FABLAB and other stakeholders in the future meetings will be followed by further training workshops as suggested and agreed upon by the OLPCorps Ghana, FABLAB/Ghana and the African American Petroleum Geologists.

CONCLUSIONS

The workshop gave all participants the understanding of how best the integration of the OLPC and FABLAB will go a long way to improve upon the educational standards of

students, domestic living of the society, business transactions among companies, economical and industrial facilitation in the country and in other nations of the world.

So much has been achieved over the last six years however, there is still room for improvement since we haven't yet reached our target of administering artificial intelligence.

It is, in the light of this, that we open up our doors for a possible collaboration with likeminded institutions, individuals and groups to develop appropriate technologies that will make us sustainable in the International market.