An Ethiopian beautiful mind: the story of a young inventor

Israel Belema is a 24-year-old young inventor. He was born and raised in Western Shoa zone, Ginichi, some 90 kilometers away from Addis Ababa. The young Computer Engineer with a beautiful mind to invent many things is currently in Spain working on security projects facilitated by Economic Commission for Africa.

As a child, Israel was always into poring over electronic materials due to a strong urge that he has to invent things.

“I used to fix radios, wrist watches, and televisions. I repair the items from thrown away materials that I have collected and reuse the parts.”

The young man used to sit by the road side in his neighborhood and the market place to fix defective radios and watches for people. As he was a young person people did not trust him but eventually he opened a small maintenance shop which later on helped him a lot to be come well acquainted with maintenance. This also helped him to anticipate for a better life and prosperous future.

“My shop was literally empty. I put defective TV sets for display and empty cartons with other items to fill the shop in order to make people trust me.”

While working in his shop on a normal day, his elder brother, who knew his interest in discovering new things, asked him to go with him to a telephone center. That gave him a glimpse for his inventing future.

“I never heard of a telephone center before. I asked him what he meant and he said we are going there to make a phone call and we went together. When we got to the telephone center, I saw people speaking into devices and I wondered how they were speaking through the device while there is nobody around them to talk back.”

His brother told him that the people were communicating with others in another city or elsewhere and that they can speak to them by using the device. Israel, who never stops asking, went on seeking for more explanation from his brother as to how it is possible to talk through the wire and was also wondering if the people from the other side physical come through the wire.

“So I went back to the telephone center some other day and looked into the compound of the center. I have observed a huge bowl in the compound. I did not know about satellite dishes back then. Since my brother had mentioned that the devices generate sound, I thought that there must be devices similar to the black things [Integrated Circuits] that are found in radios.”

Then he started taking out similar item from radios and collected them. To simulate the satellite dish that he saw, he took a tray from his parent’s kitchen and he re-shaped it into a dish-like shape. Then he mounted it on the tree.  For the center part of the dish, he took an empty butter tin cup and put some wires and magnets together with the IC.

“As soon as I did that I started hearing sounds from the surrounding area. After that, I asked people, who knew about telecommunications, if the method that I have used is the right way to transmit a sound and they said the method was correct but the sounds have to be filtered.”

Israel had no idea on how to filter sounds but he thought it must have something to do with selecting sounds. Then he started working to select specific sounds using a radio tuner. After that he was able to select and filter sounds. After his first attempt was successful, he started building a telephone handset using mud and cement to mold.

Using the hand set he built, with his first trial, he was able to hear noise from the surrounding. He wanted to listen to a single person’s voice so he used some components from a radio and used it and he was able to hear a single sound.

“I first tested the phone by calling my mother in Addis and I was surprised when I heard her voice. Then the news that I have built a phone was spread around the neighborhood and everybody started asking me to install one for them as well.”

He was only 13 years old when he made the telephone by himself and he started installing telephones to his neighbors. Then his school asked him to install a telephone system in the school and he installed one for them as well. This is when the news reached to the town’s telecommunication branch office.

“The personnel from the then Ethiopian Telecommunications Corporation (ETC) branch office contacted me and told me that I am involved in an illegal activity. I replied that what I did was not illegal and that I would like to talk to the manager. I had the courage to make a call to the head office of the ETC and talked to the corporation’s public relation manager, Abdurahim Ahmed.”

Israel told the public relation manager that people are going to stop him from installing telephones. The surprised manager asked how he did it and he told him about the accomplishment and the handset was built from mud and cement. “He thought I was joking. He asked me if I can come to Addis Ababa and was on my way to the La Gare office of the ETC. During my stay I saw people making telephone calls on the street (public phones). When I got back to home I used cans to make similar public phone system and people started using it paying 20 and 50 cents.”

When Israel met with Abdurahim in Addis Ababa, the ETC staff saw all the work he has done and Abdurahim advised him to present his work to the Ethiopian Science and Technology Commission (ESTC) and Israel did that.

“They said that I was not able to talk in scientific terms. But they were right, back then; I had no idea about the right technical terms. I was referring to the materials that I have used as ‘black thing’ for the IC and the ‘iron’ for the magnet. Due to that reason experts from ETC and ESTC were assigned to inspect my works in my town.”

The experts did not believe the young man really built the telephone. However, right after they got there they made phone calls, tested his telephones and reported back to ETC and EST.

“After that I prepared a document made a presentation about how the system works and I was granted the first patent in Ethiopia in the area of Telecommunications.  At that time I was in grade 10.”

ETC offered him satellite, broadband, communications and related   training at its training center. While taking his trainings at ETC he was attending his 11th and 12th grade education in distance form Ginchi secondary school. After two years of training, he graduated from high school he joined Micro Link College and studied Computer Engineering. He worked on VIP controlling system as his graduation project.

“In between, I was introduced to car security alarms and mobile systems. Then I thought instead of having separate devices for these purpose, why we can’t use the mobile itself as an alarm. Then I studied about a car system in one day and implemented a car security system in the mobile phone system.”

With this new system, when the door of the car opens, a call is made to the owner, when the steering wheel is touched a call is made to a specific company and for more than ten people that the car’s owner have listed as emergency contacts.

If no one responds in time, then the car makes a call to the federal police and the car will indicate its location.

He also worked and presented an editing system for the ETC to show how grateful he is for getting all the opportunities. The editing machine facilitates recording and editing all together.

The young person with a beautiful mind then started to think about electricity. “The telecom lines together with internet lines run in to our houses in addition to the electric lines. I asked myself why we use separate lines. And I have decided to bring them all together. I continued thinking about how I can achieve this. I believed that it will be possible but I had consulted my colleagues and they said the power will burn the lines and devices.”

However, Israel is the type of person who will never refrain from a task in fear of losing or burning things out. Since video is more difficult to transmit than sound and image, he started trying with video.

“I wanted to be able to plug a device into a power socket and be able to view the video transmitted through the power line. I made a test system and put two bulbs. Then the data will be transmitted over the line so I started thinking about how it can accept and transmit data. The power line has high voltage. Fiber line has its own speed characteristics. And I thought the power should be greater (a system transferring power should be able to transfer data if the voltage is zero so the data should be transmitted. If it has voltage, then we should be able to extract the data we want from the power line. This can be made while the bulb light is still on. Then I tried it and I was able to transmit the video over power line. I was able to use the line for video while still using it for light.”

Israel believes that instead of saying it is not possible, it is better to try it. He says that if we use electronics system, we can find good solutions for many things.

Among the various projects that he is involved in and has invented, one is a tanker that can water a farm. The inventor asked himself why a farmer has to go to his farm to water after planting his crops.

“The farmer can water his farm from his home. If he has a mobile device in his hand, he can send a signal to the water tanker and the tanker can do the job for him.” Israel has also made a system that informs the farmer when the tanker is full.

With this creation when gets that message, he can order the water tanker to start watering the farm.

Israel believes that it is possible to use mobile devises to operate household items. For instance, instead of switching on the water boiler after reaching home, he created a system that can make the boiler start heating the water by making a phone call to the boiler.

For houses security, when a house is being robbed, instead of getting a phone call from a security guard or a neighbor the house itself can create an alarm and make a signal on the owners mobile. “When I get the alarm signal on my mobile, I can call back to the house and control the camera system installed in the house to record every activity. That allows me to monitor what is recorded in the house from where I am. I can also order the house to lock the gates while the thief is still in the house.”

On a final note, he believes that if a person can think freely that person can come up with amazing inventions that would contribute much to the world. Israel wants to keep on inventing and in the future he wants to establish is own invention center.