



Mr. Ippei Kashiwagi, introduced to Kathmandu University in the year 2017, brought with him the vast amount of knowledge and experience gained from working at Toshiba for years. Here is how he answered to the questions put in front of him by the Enipher-2018 team.

1.Toshiba, the maker of first laptop pc, one of the most frequently heard names in the field of electronics and also a company you got to be a part of for more than 8 years. What kind of works were assigned to you there? How did it feel like working for Toshiba?

I joined Toshiba in the year 2008, in the R & D center. Mostly what I had to do there was, learn about technologies related to antennas that could be applied on Toshiba's products such as mobile phones and laptop PCs. For three years, I learned the basics of antenna technology and then I moved to the Personal and Clients Solution Department, which engaged in the development of Laptop PCs.

And even though Japan's working culture is quite competitive and requires a lot of devotion, I didn't feel a lot of pressure working at Toshiba. We were allowed to take leaves for 24 days a year and we also had days off on Saturdays and Sundays.

On his experiences of teaching in Nepal and his contributions to the field of technology.

2. As an author of 20 patents applied in Japan and the USA, what difficulties did you face while filing those patents? Can you talk about a few of those patents that you are proud of and you think are worth mentioning?

IPPEI KASHIWAGI



The R & D center of Toshiba tried to register patents even on very fundamental and basic stuffs. For the Engineers, there at Toshiba, it was mandatory to propose ideas for at least two patents. But we sometimes struggled to get ideas, which was one of the few difficulties while working there.

Talking about the patents which were filed based on my idea, one of those that I would like to mention would be A Wideband Cellular antenna that used a chip capacity in very unique method. These antennas now have been used in Toshiba's almost all business model laptop PCs since 2012 and it has also been awarded as one of the most innovative technologies by the Toshiba headquarters.

3.There are words that you also worked for Japan's IoT program. How did you contribute to it?

I was engaged in the development of antennas for the Electricity meter and Gas meter of the cities in Japan. Now, the electricity company there in Japan can monitor the usage of electricity of all the houses and offices connected to them, in every few minutes through internet. The overall system is called "Smart Meter System" and now this is widely spreading throughout the world.

I was working in this project to reduce the manufacturing costs of antenna. And several cheap materials were examined and various antenna shapes were also considered for that purpose. In the end we went along with the C-shape antenna. That was my first contribution to the project.

"Kathmandu University has the potential to become a leading University"



was the relationship between distance of antenna branches and MIMO performance. Based on the findings, Toshiba applied its own standard in antenna development.

6.You must have received a lot of opportunities even after leaving Toshiba, what made you join Kathmandu University? Tell us about your experience here so far.

Toshiba once tried to sell TVs in India, but unfortunately that was not very successful. This happened because of the huge gap in the requirements of the Indian market and our understanding of it. That was an interesting experience for me. That experience made me realize that I also need to visit a country like India, experience the culture there. Since, the culture in Nepal and India are quite similar, I decided in coming to Nepal. Then I came in contact with Dr. Bhim Shrestha (Associate Dean of SOE, KU) who introduced me to Kathmandu University.

So far, I am happy to be here. People here are friendly and the faculty members are helpful too. So no complains till now.

I have spent more than a year in KU and I've just extended my stay here for another year. This coming year I will be working on an internship program for students of Kathmandu University through which they will be able to experience the working culture at Japan.

7.What differences did you find in the education system of Kathmandu University from that of other Universities?

The biggest difference that I have found would have to be

4.We found out that you were involved in the R & D activity of Toshiba's 1st body wearable device for medical usage. How successful was the project? Did it get to the market?

Actually, not yet. It is a new technology with an innovative concept. The idea came up when a small sized electrocardiogram sensor was invented by the medical device team, there at Toshiba. One of the application was considered to be body wearable device which can be used for medical purpose. One of the biggest challenge in developing mobile wireless devices is mostly the power consumption, same was the case with this device as well. We saw possibilities in reducing the power consumption by changing the wireless communication channel and we even evaluated technology. But at that time a feasible product was not possible. The research was still going on when I left Toshiba but I don't know about its current progress.

5.What was your contribution to the establishment of new evaluation standard of high speed wireless communication (MIMO) which is now a Toshiba's Standard?

My Master's research topic was "Radio Wave Propagation Modeling in Indoor populated environments." and as I said previously, I spent first three years of my time at Toshiba learning about Antenna technologies.

So what I basically did was combine what I learnt from my master's research topic and my experience as a Toshiba Engineer to design better evaluation method and standards of MIMO technology used in indoor WiFi environment. The basic finding

here at Kathmandu University. Normally, a University would be a place where you could see cutting-edge technologies where you could conduct world class researches but that's not the case here. And by here I don't mean just Kathmandu University but all the Nepalese Universities in general. Kathmandu University has lots

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of talented faculties and students but the lack of research facilities might just be holding them back from flourishing. However, Kathmandu University has the potential to become a leading University in that aspect and hopefully this University will fulfill that potential and I also hope to be a part of that development.

8. You just mentioned about an internship opportunity for students of School of Engineering in Kathmandu University in a Sake Company in Japan. Can you tell us more about it?

For now, this will just be a trial program for a better relationship between KU and various organizations of Japan. Everything related to this program from the VISA process to financial support from private sectors, are under consideration. Personally, I'd like KU to have direct communication with the industries in Japan rather than having to rely on political organizations and human resource companies. And currently, I am trying to be the bridge between them. Now, a few universities and organizations from Japan have agreed to conduct cooperative activities with KU.

The internship as you mentioned will be in a Sake company, where the intern(s) will witness the total process of production of Sake, from harvesting to the final bottling. And currently, we are planning to accommodate a maximum of 3 students in this program but hopefully that number will increase and other programs will also be introduced in the future.

9. Nepal, still being a developing country lags way behind than other developed countries in most fields and specially in the field of technology. What do you think are the changes that need to be made, for Nepal to challenge in global technological market?

This is a very difficult question. Let me answer this question with an example. A few years earlier a professor from Japan, who has his major in design was here for a survey related to Traffic jams in Kathmandu. Since he is also my friend, he mentioned to me about his visit here. So what he felt was that the lack of infrastructures was not the reason for the traffic jams but it was due to the ignorance of the drivers. They are always in a rush. If only they waited for a few minutes they could prevent the occurrence of an hour long jam. So basically I would say we need to change the mentality of the people here. Rather than just rushing the things they need to keep calm and act in a way the problems can be solved.