

# Our potential in ICT

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It is a matter of pride to recollect the initiatives of our scientists of the Atomic Energy Centre, Dhaka, in bringing the first ever computer of the erstwhile Pakistan to the soil of Bangladesh as early as in 1964. This created an opportunity for our scientists and engineers to use this technology in those days. Since then, banks also started to get benefit from this technology. While I shall also touch on the overall ICT sector, having been associated with academic activities, it is very logical that I shall be addressing the academic activities more than other areas.

Formal degree courses in computers started at Bangladesh University of Engineering and Technology in 1982 through the opening of the Department of Computer Engineering. Initially postgraduate degrees and later on programs for undergraduate degrees were offered. It was not known how the graduates would be received in the society, and in fact it was extremely difficult for graduates of the first batches to get programming jobs, since employers could not be sure whether a CSE graduate would be able to write programs, although they felt very comfortable to have graduates of other disciplines for programming purpose. There was a dearth of teachers, as was with books and laboratory facilities. These deficiencies of teachers and libraries were compensated by the enormous interest of students in learning this latest technology and earning enviable skills. Each of them got themselves established as good professionals in advanced countries. Now the department is 34 years old. Other public and private universities have also opened computer science related departments. So it is impossible to enumerate all the success stories in computer education and research. I shall try to highlight those I know possibly unknowingly skipping some more important achievements.

Buet graduate Areef Reza won a Java competition in the 90's from the University of Waterloo. This gave us a lot of confidence—in spite of inadequacies in resources for CS education, our students are learning and earning commendable computer skills. Meantime Manzur, Mostofa, Shaikat, Suman, Zia and many others published their research findings in journals of international repute, even while they were still undergraduates. In 1997, for the first time in the soil of Bangladesh, the Association for Computing Machinery (ACM) International Collegiate Programming Contest (ICPC) Asia Regional contest was held where the team of Suman, Shaikat and Shushom qualified for participation in the presti-



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gious World Finals of ACM ICPC. Meantime, our students were performing very well in internet based programming contests organised by the University of Valladolid, Spain.

In the year 2000, in the 24th world Finals of ACM ICPC, Buet occupied the 11th position in a 60-team contest, leaving behind teams of world famous universities like MIT, Stanford, Harvard, Berkeley. Out students participated in the Asia Region Kanpur site contest. In 1999, BUET became champion and DU runners up. In year 2000, BUET team repeated the feat. Even though the universities of our country fail to be in any respectable shortlist of best universities, our students make their way into 'very short lists'. For the last 40 years some, 400 universities could make their room in this prestigious league. We have seven from Bangladesh. AIUB, BUET, DU, EWU, JU, NSU and SUST represented Bangladesh in the World Finals of ACM ICPC. It is encouraging to note that in 2015 Bangladesh, was represented by JU and SUST teams, whereas there were 7 teams from India. Both our teams were ranked higher than all teams of India. What a feat! Thanks to praiseworthy programming skills, many of our graduates are getting lucrative job offers from prestigious companies like Google, Microsoft, IBM, Facebook and so on, and that too before they complete their graduation. Many of our graduates have been working as coaches of different US universities, and that too with com-

programmable success. programming—they have the skills and the passion for solving the problems our nation is facing. Electronic Voting Machine designed by Imranul Hoque and Sonia Jahid occupied 3rd position among thousands of projects in World Engineers' convention held at Shanghai in 2004. MIST team showed commendable performance at NASA Lunabotics Mining contest. These are recognitions of the fact that our students have earned commendable programming skills and that the quality of CSE education in Bangladesh is praiseworthy.

Professor Md Saidur Rahman initiated the first Workshop on Algorithms and Computation (WALCOM) whose proceedings are being published by the famous publisher Springer and several journals are bringing out special edition with papers of the workshop. WALCOM is now being held in neighbouring countries as well. As far as I know, this is the first workshop/conference/scientific symposium in the soil of Bangladesh that could attract reputed publishers like Springer. The celebrated brilliant student and colleague Mohammad Manzur Murshed started PhD education under the supervision of the very famous professor, Richard Brent at ANU. He has created an opportunity for some 60/70 Bangladeshi students to pursue their higher education in a single school of Monash University.

Dr Ekram Hossain has become a professor in Canada along with being editor of several IEEE Transactions. Now he is one of the youngest IEEE Fellows with a very praiseworthy list of publications and books. This confirms that CS education in Bangladesh, in spite of shortest in resources, has become truly world class. Meantime our graduate Suman Kumar Nath got admitted into the top ranked CSE school of Carnegie Mellon University, and is now an employee of the prestigious institution of Microsoft Research. By now he is a very celebrated researcher, under whose leadership we successfully initiated the international conference on Networking, Systems and Security at CSE Department, Buet. This series is continuing with participation of foreign experts in the field.

By now our graduates have got admitted into the finest schools including MIT, Carnegie Mellon, Harvard, Yale, Stanford, Berkeley, CalTech, Waterloo, Toronto, Oxford. Professor Md Saidur Rahman of our department wrote a book in co-authorship with his supervisor Professor Takao Nishizeki, as has done Professor MMA Hashem of KUET and Professor Ashikur Rahman of BUET. Dr Zulkernine of Queens University has become Canada Chair, while Professor Latifur Rahman Khan of UT Dallas has become a distinguished scientist of ACM. Such feats will be very uncommon for any department not only in Bangladesh but also in advanced countries. We started the first international conference ICCIT series in Bangladesh with massive participation of our undergraduate students. This conference is flourishing day by day with Conference Chair Professor MA Karim, Executive Vice Chancellor and Provost of University of Massachusetts, Dartmouth. Already 8 graduates of CSE Department, BUET have been awarded the prestigious Fulbright scholarship since session 2007-8, and we feel deeply honoured at this achievement of our graduates. DU graduate Dr Julius Hossain has been working in the prestigious flagship institution of European

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Molecular Biology Laboratory. Back at home, Professor Md Saidur Rahman got International Funai Information Technology award, Bangladesh Academy of Sciences Gold Medal. Dr Md Sohul Rahman and Dr Masud Hasan also got recognition of their research excellence. Dr Md Sohul Rahman's number of journal publications has well outnumbered his age in years.

Our brilliant computer girls: Dr. Nova Ahmed, Dr. Taniya Siddiqua, Dr. Tanzima Zerin Islam, Dr. Zalia Shams, Awalin Sopan, Nabila Rahman, Shantonu Hossain, Dr. Sonia Jahid, Dr. Farhana Dewan, Dr. Shamsi Tamara Iqbal, Dr. Samira Manabi Khan, Dr. Sadia Afroz, Dr. Fariba Khan, Dr. Ssadia Afroz and Samia Shafique among others joined Grace Hopper celebration and proved that they are not behind. Himel Dev, once a lecturer in the Department of CSE, BUET, has become the international winner of The Undergraduate Awards in the Computer Sciences & Information Technology category. He was also invited to the prestigious Heidelberg Laureate Forum participated by Turing award winners and Fields medallists.

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30-doctoral-degree-holder strong IIT CSE departments have an intake of 45 UG students. At BUET our intake is 120,

our faculty strength is around 40 of which only half are doctorate degree holders. The situation in other universities may not be as good. Our laboratories are not enriched either. In that sense our achievements cannot be neglected. Moreover, we also involve ourselves in inspiring our students to organise CSE days, project shows, programming and mobile contests to increase ICT skills of our students. Recently, with the sincere efforts of spirited full-of-energy Minister in charge of ICT division Mr Zunaid Ahmed Palak initiatives like National High School Programming Contest has been very effective to mobilise talents of our young people towards developing commendable programming and problem solving skills. Mr Palak is also going to introduce year-long prestigious ICT Fellowship of large remuneration to inspire young people to excel in their ICT skills.

For the last 30 odd years there have been numerous initiatives to harvest the benefit of ICT and change the lot of the country. We established the Bangladesh Computer Council with the hope of accelerating ICT activities throughout the country. Some progress has been made in developing software for e-governance, although I cannot be sure whether those software are being fruitfully used. NBR has praiseworthy computerized tax matters.

Twenty years back even the most optimistic projection could not aim for USD100 billion that India is earning now. Being 1/7th of the neighbouring country we are still nowhere in respect of successes in ICT activities, although our students have been outperforming Indian ones in international ICT competitions. Incubator at the heart of the capital, ICT internship, shared office at Silicon Valley, representing country in foreign ICT expos, WSIS, Doel laptop—nothing could make a dent. Neither ICT Policy nor ICT Act could help us change our lot. The country is being flooded with foreign software and experts for maintenance. The first Bangladeshi banking software were developed in early 80's, and we were not far-sighted enough to grab our own market. The current government has rightly expressed its aspiration to create Digital Bangladesh. There could not have been a better far-sightedness. A country with 24 times as much population density as world average and not much mentionable resources under the soil can only optimally use its resources to the benefit off the nation reducing wastage to the minimum. ICT is a great toll to ensure all these objectives at the same time. Unfortunately, it appears that Digital Bangladesh initiatives have not been adequately strengthened with knowledge workers—ICT faculties of universities and bright talented ICT students. There must be a missing link. Hundreds of crores of Taka are being spent with no visible commensurate output. The only figure that we can show is number of mobile phones. Unfortunately none of which is made in Bangladesh. With some 60 million mobile phone we could not take initiative to have an industry here in Bangladesh. We should create an inventory for all ICT initiatives, and analyse why our initiatives are not able to embrace success.

Bill Gates could become the richest man of the history without a mentionable inheritance of riches, and rightly wrote a book entitled "Business at the speed of thought". Thirty years of experience, with no mentionable success should convince us that we have taken a wrong path in respect of ICT initiatives. If we want to construct big bridges we need civil engineers, for setting up chemical industries we need chemical engineers, for setting up hospitals we need doctors and for making a country Digital we need computer educated experts. Quacks will not make a good hospital. In the same way unless somebody has formal computer education, the chances of success in building a large computer system is slim. Foreign experts will not be creating Digital Bangladesh. Had it been possible then Kuwait and Saudi Arabia would have been technologically advanced long back. So in creating Digital Bangladesh, our young people bestowed with commendable computer expertise should be the forerunners, universities should play the pioneering role. Success in the creation of Digital Bangladesh will largely depend on how well we are able to induce this world class computer educated young people to this mission, not as workers but as leaders. Let us hope for those days, and make Bangladesh a prosperous nation through harvesting the benefits of ICT.

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gious World Finals of ACM ICPC. They shared the 24th position with Stanford University in a contest of 54 teams from round the world. This has definitely contributed to the confidence of our students.

After this success, with the initiative of Zakaria Swapan, the first National Computer Programming Contest (NCPC) was organised jointly by the Daily Star and Proshika at the then Hotel Sheraton where the Honourable Prime Minister Sheikh Hasina was the Chief Guest along with many important ministers. That event was very inspiring for our students. Since then, students of Bangladesh University of Engineering and Technology participated in all over the world finals up to 2014 creating an enviable record of uninterrupted participation in the World Finals of ACM

mendable success.

In year 2006, 100 topmost programmers of the world were selected for a contest in New York. There was one person from Bangladesh named Istiaque Ahmed of Buet and he was adjudged 79th in the world. It is not only BUET students but also students from Jahangirnagar, DU, NSU, AIUB and NSU who are getting these jobs. In recent years Mashuq, Manzurur Rahman Khan, Sanny, Nafi, Riyad, Mahub, Enjam, Aumy, Pratyoi, Hafiz, Linkin, Sadia, Sakib Safayat of Buet, Protik Mohammad Hossain, Jane Alam Jan and Aninda Majumder of DU, Sabur Zaheed of AIUB, Arifuzzaman of JU, Muntasir Azam Khan of NSU among others have been offered these jobs.

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