G. Harsha Wijayawardhana, COO/CTO, Theekshana R & D
B.Sc., FBCS
Reference: https://www.ict-history.lk/en/harsha-wijayawardhana/
https://www.theekshana.lk/

Summary

I'm the Chief Operating Officer of Theekshana, which was set up by the University of Colombo School Of Computing (UCSC) as one of the initial two companies which had been founded by the University sector in Sri Lanka. I presently serve on the Board of Directors of the Bank of Ceylon---which is the largest Bank in Sri Lanka--- as an Independent Non-Executive Director since January 20th, 2020, and chair the Sub Committee on ICT of the BoC Board.

I have been involved in Government ICT projects and designed and implemented government networks such as the Ministry of Foreign Affairs, Information Department of Sri Lanka as well as PRIU (Policy Research Information Unit of Presidential Secretariat). I was also responsible for setting up of SDU of UCSC and 'm the COO/CTO of Theekshana since its inception. I'm also responsible for some of the landmark national-level software projects: Birth, Marriage, and Death Certificates issuance system, which the government had set up throughout the country, and House Holder List, which held individual data on every Sri Lankan. Every Divisional Secretariat had set up House Holder Database. I was responsible for developing the Automated Fingerprint Identification System (AFIS) for the Sri Lanka Police. AFIS had won many national and international accolades as one of the most successful eGov projects in Sri Lanka. In 2017, the Department of Finance of the Ministry of Finance of the Government of Sri Lanka selected me as the technical consultant for the development of the Electronic Government Procurement (eGP) of the Government of Sri Lanka. As a part of the World Bank grant, I visited Georgia on a study tour to study the National Georgian eGP system in mid-2018. The cabinet of Ministers of the Government of Sri Lanka single-sourced the development of the eGP project to Theekshana R & D. The Sri Lankan eGP System has begun its operations in May of 2019 and is now fully functional with many online Procurement submissions with more than a hundred government organizations that are at various stages in the Procurement processes. At present, more than five hundred vendors have registered with the system as well.
I have been involved in UNICODE Sinhala technology Research in Sri Lanka for more than ten years and serves on numerous language committees of the Information and Technology Agency (ICTA), which is involved in implementing the UNICODE standard in Sri Lanka. I was a member of the committee which was involved in the Standardization of SINHALA SLS1134 and had carried out the third revision of SLS 1134. I led a team of scholars in search of numeration in the Sinhala Language and published results of the research in the National Symposium in Archaeology. I'm a member of the Information Technology Sectoral Committee of Sri Lanka Standard Institute (SLSI) and a member of Working Group 2 (WG2) of ISO of SC2. I had been involved in several pioneering Telecenter projects in Sri Lanka and have more than ten-year experience in providing technology to Rural Telecenters. I was a founding member of the steering committee of Telecentre.org Academy of Sri Lanka. Also, I was a member of the drafting committee of syllabi for the Global Telecentre.org academy, and I also guided Global Telecentre.org Academy in selecting an e-Learning technology platform.
H.E. Mahinda Rajapaksa, the 5th- executive the President of Sri Lanka, appointed me as the ICT consultant to the Presidential Secretariat in December 2010. I was also appointed as the ICT

Consultant to the Telecommunication Regulatory Commission of Sri Lanka in January 2014. I was also recognized as one of the Internet Pioneers in Sri Lanka in 2015. Lanka Educational Research Network (LEARN) honored me, as one of the seven founding members of LEARN at its thirty-year celebrations. I served on the board of directors of Lanka Government Information Infrastructure (LGII) from 2010 to 2015. I'm also a board member of nic. lk (LK Domain Registry) since its inception. I was the founding president of the ISOC LK Chapter. I'm the Co-Chair of the Sinhala Generation Panel of ICANN for International Domain Names. I had published several scientific papers and authored several books and one of which is on the Sinhala numerals, which were used before 1815 is titled "Numerations in the Sinhala Language" based upon the research I carried out on Sinhala numerals.

Work Experience/positions held

January 2020 – Member of Director Board of the Bank of Ceylon and the chairman of Board subcommittee on ICT

October 2019-Recognized as one of the seven Founders of LEARN at its Thirty year Anniversary Celebration which was graced by President of Sri Lanka.

November 2018 -Appointed as Director Bank of Ceylon in the fifty two day government,

June 2018- to date Buddhist Commissioner, Buddhist Right Commission appointed by All Ceylon Buddhist Congress (ACBC).

December 2017 -to date Co Char Sinhala Generation Panel of ICANN,

June 8 ,2015 -Recognized as a ICT Pioneer by LK Domain Registry, ISOCLK and ICTA to mark 20 years of Internet in Sri Lanka.

January 2014 – to- 31st December 2014 ICT Consultant Telecommunications Regulatory Commission of Sri Lanka (TRCSL).

December 2011 – to- February 2015 Director Lanka Gov. Infrastructure Interchange (LGII) a government company under ICTA.

2006 to Date – Member, ICT-Sectoral Committee, Sri Lanka Standard Institute (SLSI).

December 2010 – 9th January 2015 ICT Consultant to the Presidential Secretariat and ICT Consultant to the 5th Executive President of Sri Lanka.

2010 – to – date Member and Expert JTC1/IEC/SC2 WG2 committee of ISO

2005 – to – date Member ICTA Local Language Working Group (LLWG)

2007- to-date- Director/CEO Amsoft Technologies (Pvt) Ltd. And the ICT consultant to American Group of Companies since 1997.

2002– to – Dec, 2018 Consultant University of Colombo School of Computing (UCSC)

2009 – to – 2010 Member Steering Committee of Telecentre.org Academy of Sri Lanka

2009 – Member eAsia Organization Committee and Paper Committee.

2009 – Track Chair eAsia 2009 for Telecentre track

2004 – 2007- Member Steering Committee V-Village Project(IDRC)

2004 – 2010 -Deputy Coordinator Pan Localization Project

2003 – 2010 -Member Architecture Team Pan Localization Project(IDRC)

2005 – to Feb 2007- Consultant to RADA through University of Colombo School of Computing

2001– 2002- Consultant to Policy, Research and Information Unit of Presidential Secretariat.

2004 – Member Technical Committee RTN –ICTA.

1999 – 2001 -Visiting Lecturer, Institute of Computer Technology, University of Colombo.

May 2000 to 2003- Team Leader MIS project of the Department of External Resources of the Ministry of Finance.

2000-2015 IT- Consultant, Ministry of Foreign Affairs, the Government of Sri Lanka.

1999 Dec –2001- Consultant Policy Research Information Unit of Presidential Secretariat, The Government of Sri Lanka.

1996-1999 -IT Consultant, Dept. of Immigration & Emigration, Government of Sri Lanka.

1999 to 2003- member Internet Committee CINTEC.

1998 –2000 -Web Master National Web site of Sri Lanka, www.lk.

Nov 2006 to March 2007- Appointed as member of Security Review Team of Lak Gov Net (LGN).

Oct 2003 -2004- Consultant Government Printer through ICTA eSri Lanka Project.

Key duties

[Theekshana]
COO/CTO of Theekshana a company, which was founded by the UCSC where I played a major role in setting up the company as a not-for-profit Company. At present, Theekshana handles several large projects which are important in the fields of eGovernance and Higher Education. Recently, Theekshana began offering the same services provided to the public sector to the Private Sector Companies.

[Board Member BoC and LK Domain Registry, Advisory Member ISOC-LK]
I presently work as a Non-Executive Member of the Board of Bank of Ceylon (BoC), the largest

bank in the Country. I serve on several board-sub committees such as the Audit Committee, Risk Committee, and Nomination and HR Committee, and ICT committee. Further, I chair the Board Sub Committee on ICT.

Also, I serve on the LK Domain Registry Board as well as the Advisory Board of the Sri Lanka chapter of the Internet Society (ISOC-LK).

[eGP System of the Government of Sri Lanka]
Since late 2018, I act as the project lead and the main technical consultant for the development of the Electronic Government Procurement System for the Government of Sri Lanka, which is named as www.promise.lk.

Key Projects

Theekshana and Software Development Unit (SDU) of the UCSC had undertaken more than a hundred Software Development projects or consultancies. The closure of SDU in December 2018 led Theekshana to handle some of these projects and their maintenance. The following are some of the key- projects that I have made contributions to as either the head of SDU or COO/CTO of Theekshana:

Name of Project: Electronic Government Procurement System (eGP System); www.promise.lk
Client: The Department of Public Finance, the Ministry of Finance
Year: 2019: Contract for 5 Years.
Project Status: On Going and Finishing the first Phase

eGP System for the Government of Sri Lanka is the largest ever undertaken by Theekshana, contract valuing over seventy million rupees. The Ministry of Finance signed a contract with Theekshana for five years to build the system after it was approved by Cabinet of Ministers. At present, Theekshana had finished the Shopping, NCB, and ICB methodologies of Government procurement. The second phase of the project, the contract management, is planned to start in November 2020.
Technology used: Bootstrap Framework, JQuery, PHP, and MySQL.
I play multi-roles in the project: System Designer, Technology lead, and the key-system analyst. Before I undertook the project, I spent five days in Georgia studying their system under the World Bank funding. We further studied multiple systems in Asia and Europe.

Name of Project: University Leave System for the Public Universities
Client: The Ministry of Higher Education/Education
Year: 2018-19
Status: Completed; in the maintenance period

The University of Leave System is a unique system that facilitates public university staff to apply for overseas leave through the web-based system. All overseas-leave must require the approval of the Minister in charge before the staff member leaving the country. Applicants depending upon the position, have to go through a series of multiple level approvals before reaching the Ministry for the sanction of the Minister. The Ministry of Higher Education (MOH)

contracted Theekshana to develop the system, and Theekshana had completed the development work within the stipulated period of six months. Theekshana deployed and carried out training all seventeen public universities throughout the country. Overseas Leave System became the very first single System that had been used by University Staff countrywide.

Technology used: PHP/MYSQL/JQUERY/Bootstrap Framework

Name of Project: Automated Fingerprint Identification System (AFIS)
Client: The Department of Police
Year: 2014
Status: 5 Year Maintenance Contract Signed starting from 2018

The present, H.E the president, as the Secretary of Defence, requested me to develop the Automated Fingerprint Identification System (AFIS) for Sri Lanka Police in November of 2010. And it took roughly two years for the development with the Research, and for testing of the AFIS. At the time I started building the AFIS, one of the major problems faced by the Criminal Record Division (CRD) of the Department of Police had been to clear the backlog of Fingerprints that had been accumulated over many years. The system, which we developed, can handle the following at present:

1. Ten Print to Ten Print
2. Latent Prints to Ten Prints
3. Latent Prints to Latent Prints
4. Latent to Ten Prints

By 2013, the CRD carried out the digitization of fingerprints. At present, CRD digitized nine hundred thousand ten prints. The system boasts of 99.9% accuracy in ten print Fingerprint matching, and latent print accuracy remains at between 35% and 45% range (without cleaning the print for disturbances). We have developed some latent print cleaning tools as well as minutiae marking tools with cropping. My Team and I several algorithms developed, namely parallel processing algorithms, matching algorithms, etc. After a long development phase, H.E. The President, as the Secretary of Defence, launched the AFIS officially in February of 2014.

Technology used: Image Processing, Neural Network, MySQL, ANSI C, C#(Client Side Programming) and PHP for Web Programming.

Name of Project: Automation of University Grant Commission Selection Process
Year: 2010
Client: University Grant Commission, The Ministry of Higher Education, Sri Lanka
Status: The Software was used for eight years with several versions. The last maintenance contract was signed in 2018.

The University Grant Commission (UGC) of Sri Lanka awarded a contract to develop a rule-based Database with a Dashboard application to carry out University Selection/Admissions for

the public universities in Sri Lanka. As the CTO, I had to develop a Business Logic Rule Engine that would be able to translate selection/admission rules into Business Logic and to store them in the system. We developed unique algorithms to carry out the selection using the stored rules and data. The World Bank IRQUE project funded the system development, and it was one of the most complex Systems that had ever been developed by Theekshana.

Technology used: Visual Basic, MS SQL and PHP

Name of Project: Encoding of Sinhala numerals in ISO 10646 and Research into Sinhala Numerals
Year: 2007 -2013
Client: Information Technology Agency of Sri Lanka(ICTA)
Status: Completed; The research was published as a book titled: "Numeration in the Sinhala Language"

I carried out extensive two year research into Sinhala Numerals. As a result of my research, I established beyond doubt that Sinhala people had used several sets of Numerals before the occupation of the Kandyan Kingdom by the British. Moreover, Sinhala people had known the concept of zero for more than two thousand years. They had invented a symbol for zero either in parallel or before the Gwalior Zero in India, which has been accepted as the first-ever symbol for zero documented in the world. Having published my work, I represented Sri Lanka at the JTC1/IEC/ SC2 57th WG2 meeting of ISO in Busan Korea. I defended the Sri Lankan government's position successfully that Lith Illakkam with the zero must be encoded in the Basic Multilingual Plane (BMP) and Sinhala Illakkam or Sinhala Archaic Numerals to be encoded in the Supplementary Multilingual Plane (SMP).
Further, I was instrumental in persuading the Government of Sri Lanka to change from its observer status of WG2 to Participant status. As a result, Sri Lanka hosted WG2 in Sri Lanka for the first time.

Name of Project: Hosting and Maintaining of LMS for Telecentre.org Academy
Year: 2010
Client: Telecentre.org/Canadian IDRC
Status: Completed.
Telecentre.org awarded a contract to host and maintain the Learning Management System (LMS) for Telcentre.org Academy. I was appointed as the Project lead and organized training programs for participants from five countries: India, Malaysia, Philippines, and Sri Lanka.
Sri Lanka spearheaded the Graphical User Interfaces (GUI) translation of the LMS. Theekshana helped participant countries translating the initial twelve courses into their languages. I became one of the authors of twelve-courses, which was released later.

Name of Project: Introduction to eLearning to Royal University of Bhutan
Year: November 2009 – To- 2010
Client: Royal University of Bhutan
Status: Completed

The Royal University of Bhutan signed a contract with Theekshana for the introduction of eLearning to all their campuses. Although Prof. K P Hewagamage headed the training team, I visited Bhutan several times as a member. Since the Team lead requested me to train several institutions, I selected the Institute of Traditional Medicine in Bhutan. This project became one of the largest projects which Theekshana had signed internationally. The World Bank funded the project, and subsequently, Theekshana signed a sequel to the project for several additional training sessions, which were carried in Sri Lanka.

Name of Project: Presidential and Parliamentary Elections for the Government of Sri Lanka.
Year : 1998 – 2010
Client: Commissioner of Elections
Status: Completed.

The late Prof. V. K Samaranayake and his team at the University of Colombo convinced the Election Commissioner to tally the Presidential Election of 1982 successfully using computers. It became an instant success. Since then, the University of Colombo assisted election commissioners of all elections up to 2015, tallying results, as well as the dissemination of the results to Media institutions using various data formats through an exclusive Election Intranet.
My involvement initially had been to set up Local Area Network and Servers for the Election nights. Being a good C programmer, I helped the University team to develop TV screens for Rupavahini where Election results were displayed in Sinhala, Tamil, and English. Mr. Dissanayake, the last Election Commissioner before the Election Commission, decided to provide Election Results to all Media institutions who requested, I designed and developed the Election Intranet and Local Network with high security. I also led a team of developers from SDU to develop screens Television with Visual Basic. From 2001 onwards, I also lead several SDU to develop overall tallying Software, becoming the Project Lead by 2004. I also became the chief architect of the Software that was used until 2015.
Activities performed:

- Designed and Implemented secure Intranet of Election commissioner
- Designed applications for processing of Election in 2004 using MSSQL server, Visual Basic 6
- Designed Ruavahini Applications web based using html and MS VB6
- Designed the database of the Election processing applications

Name of Project: Document Management System for the Government of Sri Lanka
Year: August 2007 -2016
Client: ICTA, Registrar of Persons
Status: Completed. Theekshana signed several maintenance agreements and the last one was in 2016. At present, the Government maintains the system, Theekshana providing support on and off.

Government Document Management System was the very first large project that Theekshana signed. I spearheaded the design of the Software as well as the development work. The architecture of the Software allowed it to be easily customized by clients adding new attributes in the database and workflow steps on their own to suit their different requirements. By giving the versatility, I expected many government agencies to adopt the Software. A byproduct of this Software is still used by the Department of Registration of persons to this day to store NIC Index cards data.
The key client of this System is the Department of Registrar General, who is responsible for issuing Birth, Marriage, and Death Certificates in Sri Lanka. As a stopgap until ePopulaion Registration is developed, all manual certificates, which were issued since 1960, had been scanned and loaded into Document Management System countrywide.
All Divisional Secretariats can access distributed systems through Lanka Gov Network. At present, The Department of Registrar General centralized data enabling people to obtain copies of their birth certificates from any part of Sri Lanka. The government uses the tagline "Birth Certificate in three minutes". We developed two different systems, namely a Desktop version which connects to the centralized Database through REST Web service and a Java-Based Web-Based Application in 2010.
Technology used:

· VB.net and C# client-based applications and Data Encryption
· PHP and JAVA were used for the Development of Web-based Systems.
Versions developed For Linux as well as for Mac.
. MySQL is used as the Relational Database Management System.

Web Sites and Networks Development

Websites
In the late nineties, I developed some of the earliest Web Sites in Sri Lanka. Some of them are listed below:
www.formin.gov.lk: (The Ministry of Foreign Affairs initial site, and it went through many metamorphoses).
www.priu.gov.lk: The official media site of the President of Sri Lanka from 1998 to 2015. I developed the PRIU web-site when I was appointed as the ICT consultant to the Policy Research and Information Unit under Her Excellency Chandrika Bandaranayake Kumaratunga, the fourth executive President of Sri Lanka.
www.news.lk: Mr. Nandasara of The Institue of Information Technology (ICT) developed the site under the guidance of the late founding director of ICT and UCSC. I was a member of the original team, and subsequently, SDU refurbished the site and maintained it from 2007 to 2010 until the end of the thirty-year war.

www.bit.lk: I developed the original site in the early two thousand. bit. lk is the official site of the Bachelor of Information Technology Program, the very first external degree program on ICT offered by a public University. I became its first webmaster as well as System Administrator of the Server. BIT program became the very first program to release semester results online in Sri Lanka.
www.fonts.lk- The very first website for Sinhala and Tamil Unicode implementation. And the Logo of this site had become Logo for Sinhala and Tamil Unicode. I developed this site in 2004-2005.

SDU and Theekshana since then had developed closer to fifty websites for the Government and the private sector.

Networks

I designed and implemented many large networks in Sri Lanka. The following are some of the major networks, I implemented in Sri Lanka:

1997 - 2002 The Ministry of Foreign Affairs Network: I implemented the Fibre Network of the Ministry of Foreign Affairs with Manageable Layer 2 and Layer 3 Switches. The Ministry of Foreign Affairs still uses the network I deployed in the early two thousand, and at its peak, had more than three hundred clients connected or nodes connected to the Local Area Network (LAN)

1999 –PIRU: I also implemented the Policy Research and Information Unit (PRIU) network with its servers.

1998 -1999 – Y2K Project: I implemented several networks before the year 2000 since I became a network consultant to check upon vulnerable systems for year 200 bug. Some of the networks, I implemented and restructured were Independent Television Network, CINTEC networks

2004 – IBMMB, University of Colombo: I designed the network of the Institute of Molecular Biology and Biochemistry network.

2005 -2010- Department of Information: I designed and implemented the network of news.lk, and LAN and WAN of the Department of Information network.

2010 - 2015-Presidential Secretariat: As the ICT consultant to Presidential Secretariat, I refurbished and restructured the Presidential Secretariat network. This included Temple Tree, the present-day Prime Minister's official residence, and the office complex; I also set up new firewalls and trained ICT Staff. Further, I restructured ICT Division of Presidential Secretariat.

Education

B.Sc., Majoring in Biochemistry and Chemistry and Minor in Mathematics in 1989
University of Miami, USA

Professional Qualifications

Fellow of the British Computer Society (Membership No: **990566903)**

AWARDS

National Recognition

2015 – ICTA, LK Domain Registry, and Sri Lanka Chapter of Internet Society recognized me as an Internet Pioneer at the celebrations of connecting Sri Lanka to the Commercial Internet.

2019- Award of Recognition- Lanka Educational Research Network (LEARN) recognized me as one of the seven founders of LEARN at its 30th Anniversary Celebrations. Other founders were the Late Prof. V.K. Samaranayake, Prof. Abaya Induruwa, Prof. Gihan Dias, Dr. Ruvan Weersinghe, Dr. Nimal Rathnayake, Dr. Ajantha Athukorala.

Special awards

Theekshana and SDU won the eSwabhimani award for best government projects twice in 2010 and 2014 for Birth, Marriage Death Issuance System, and Automated Fingerprint Identification System respectively.
2009 eSwabhimani Special mention for www.news.lk
2011 eSwabhimani Special Recognition
2015- Manthan Special Recognition

Foreign Training

I had gone through several local and International training. I have listed the foreign training below:
2001-INET Stockholm, Sweden.
2003- Pan Localization Project-Training in Unicode Tools, Lahore, Pakistan.
2008-2010 NHEMIS Projects-HIS Hannover, Germany.
2009- Telecentre.org Bangkok, Thailand, I also became a resource person later as well.
2018-Georgia, to Study eGP.
2019-ODAInvitational Training and Workshop KEIS, SOUL KOREA.

Other Major Clients

Also, I was the consultant to the following clients:
i. Rupavahini, ITN (Major Television networks in the Country)
I helped both public TV Stations to set up their computer networks. Later I also became the ICT consultant to Rupavahini and trained their IT staff to create their Website, www.rupavahini.lk from 2005 to 2007.
ii. Sri Lankan Airlines
I trained Sri Lanka Airlines IT staff in MS SQL Server/Visual Basic.
iii. The Prime Minister's office of Sri Lanka,
I served as the ICT Consultant to the Prime Minister of Sri Lanka from 2004 to 2007.
iv. Plantation Development Trust(PHDT)
I developed the IP/VPN network of the PHDT, and it was one of the very first Intranets in the Plantation Sector in Sri Lanka through UCSC.
v. Department of Immigration and Emigration
I served as the IT Consultant to the Department of Immigration and Emigration (DIE) from 1997 to 2002 through CINTEC. I helped DIE to iron out some of the critical issues they faced running passport- issuing through the automated system. I became a member of the expert team to speedup slowing then newly acquired turnkey Passport- issuance System in 1997.
vi. Criminal Investigation Department (CID) of Sri Lankan Police
I was one of the pioneers in introducing Digital Forensics in Sri Lanka. In 2010, I was involved in the process of capacity building of the Criminal Investigation Department (CID) with ICTA.
vii. Farmers Insurance And Agrarian Board
Farmers Insurance contracted SDU of UCSC to refurbish Farmers Insurance. Also, I cleaned the data in the farmers' insurance database and migrated from an AS400 based system to MSSQL Server-based Client/server architecture. I still serve as its ICT consultant.

Foreign Funding Agencies:

Several foreign funding agencies contracted both Theekshana and SDU for Software Development projects as well as network consultancies for the last twenty years:

i. Asia Foundation:
Asia Foundation gave several contracts to SDU/UCSC to develop the following Software Applications to SDU:
a. Rakma 2005- 2006: SDU worked with the Department of Statistics of the University of Colombo to identify the number of missing persons during 1989/89 in Sri Lanka as well as missing persons in the North East from 1994 onwards. SDU created a Software, which facilitated to amalgamate of raw data collections---different formats---into a single database from Human Right Commission (HRC), and the NGO consortium, which dealt with human rights in Sri Lanka. Asia Foundation encouraged other organizations to use the Software Application, which was named "Rakma". Together with the Department of Statistics, SDU incorporated algorithms to identify duplicate records in the missing complaint database. The Asia Foundation encouraged the Ministry of Women's Affairs to use the Rakma to track complaints on domestic violence.
ii. NGO Secretariat-2009: The Asia Foundation contracted SDU to develop a Registration

System to register Non-Government Agencies in Sri Lanka.
iii. Finance Commission-2018/19: The Finance Commission signed a contract with Theekshana to develop a comprehensive Management Information System (MIS) to keep track of the financial budgets of provincial councils under the funding of the Asia Foundation.

ii. World Health Organization (WHO)
Theekshana developed two mobile applications using Native React for Android and Apple. For the same, Theekshana created a Website.

iii. IDRC Canada
IDRC contracted several projects to Theekshana and SDU.
Virtual Village Project - Theekshana
SDU - Initial phase of Telecentre.org Academy.
iv. The World Bank
Theekshana- eGP project.
UGC automation.
v. UNICEF
a. Automation of case tracking system for Attorney General's Department and Theekshana modified it for Child Protection Authority

Telecenters

The late Prof. Samarnayake was the ICT Consultant to Sarvodaya and was responsible for formulating Telecenters of Sarvodaya. The earliest Telecentres in Sri Lanka relied heavily on dial-ups. I developed fine-tuning techniques to connect dial-ups using noisy Telephone lines in Sri Lanka. Also, a few knew in Sri Lanka at the time to configure Apple dial-ups. Since I could connect and configure dial-up servers and Apple and Windows clients, the late Prof. Samaranayake instructed Dr. Harsha Liyanage of then Deputy Executive Director of Sarvodaya, who was responsible for the Digital Program, to consult me on Sarvodaya Telecentre Program.
As a result, I began a long association with Sarvodaya, which lasted until the passing away of the late Professor.
a. I helped to connect several Sarvodaya telecentres subsequently. Also, I helped Sarvodaya to design their Mobile ICT Bus, which could connect through dial-up to the Internet.
b. Center for Women (CENWOR) started its first Telecentre in Tissamaharama, Sri Lanka. And I became one of the very first ICT consultant helping in many Technology projects. Later, CENWOR joined the Virtual Village Project of Sarvodaya.
c. After 2005, I participated as a resource person in Nena Sala ---Sri Lankan version of Telecentres ---training conducted by the ICTA.
In mid-2005, Theekshana, together with Sarvodaya, I led the Technical side of the Virtual Village Project.
d. I headed Telecentre track of the eAsia2009 conference, which was held in Sri Lanka.
e. Kothmale Community Radio Internet Project (KCRIP)-(1998-2001): KCRIP was a landmark project which changed the history of Telecenters not only in Sri Lanka but in the World as well. UNESCO granted the seed funding for the project. The Government of Sri Lanka contributed to

the project by way of providing some critical infrastructure set up, namely Telephone exchange for Kothmale Holiday Bungalows and the line of sight multiplexer to connect the 2mbps data line.
The University of Colombo acted as the consultants to the project. Journalism Unit of the Department of Sinhala became the overall lead of the project. The director of the Institute of Computer Technology (ICT) of the University of Colombo, a predecessor to UCSC, the late Prof. V. K. Samaranayake, became the designated administrative head. When the project stalled due to the non-availability of the Internet, the Late Professor appointed me to study the ground situation and to suggest a solution. Having agreed with Sri Lanka Telecom (SLT), I decided line of sight was the only way of connecting the two sites, Nawlapitya exchange and KCRIP site. The government agreed to provide infrastructure at its own cost. When SLT established the line of sight and Telephone exchange, I led the technical teams from the SLT and ICT to configure routers, servers, and a dial-up server. I configured OSPF, a popular dynamic routing protocol on CISCO 2500 router, Kothmale becoming the first site to have dynamic routing officially. Also, I configured the File Server/Web server as well as a dial-up server to connect two public libraries at Nawalapityia and Gampola. ICT designed all Sinhala Website, www. Kirana. lk. Kothmale Community Radio, a community Radio station of Sri Lanka Broadcasting Corporation, became an instant hit Internationally. KCRIP became the very first multipurpose Telecenter in the world. UNESCO set up many similar Telecenters in association with Community Radio in Nepal and Africa. Sagarmatha of Nepal became the second Telecenter after KCRIP, and Time Magazine featured this project due to its uniqueness. The KCRIP developed several popular radio programs that used the Internet for reading newspapers live and answering listener questions. Listeners directed questions live over the phone on various fields, some relating to their careers, which the host answered consulting relevant websites. Giving answers online, based upon live listeners' questions was coined by the former Director-General of SLBC, Mr. Eric Fernando as "Radio Browsing". Time Magazine, when featuring the KCRIP, focused on Radio Browsing introducing it as the project's novel key feature.
Ref:http://documents1.worldbank.org/curated/en/952191468115460578/pdf/514220WP0CE0Ko10Box342027B01PUBLIC1.pdf

Virtual Village Project (vvproject-2004-2008): This was another versatile project and another first for the country. The project had many objectives in experimenting with the last mile connectivity using Wireless Fidelity (WiFI). Dr. Harsha Liyanage and I designed the project, and Candian IDRC funded it. Sarvodaya created two large Hotspots in Gampha and Hatton under VVproject. We created two Telecentres and studied the behavior of users on the Internet. Also, we experimented with how foliage and long paddy fields in villages in Sri Lanka impacted WIFI signals in different weather conditions. Further, we researched ad-hoc networks, content management systems, and how to develop Linux based routers, etc. Partners of the project were UCSC, Cenwor, The agriculture, department of University of Peradeniya and Sarvodaya.
Ref:https://www.sarvodaya.org/2008/01/04/sarvodaya-%E2%80%93-fusion-shines-at-gk3-malaysia

Internet Society and Sinhala Generation Panel

a. Internet Society - Sri Lanka Chapter (ISOC-LK)
In 2001, I participated in the last and the largest gathering of the INET conference, which was held in Stockholm, Sweden. I read two papers that I authored in the field of ICT4D at the INET. A large team of participants from several Universities, the University of Colombo, University of Moratuwa, and University of Ruhuna represented Sri Lanka at the INET conference.
The initial attempt to start the ISOC Sri Lanka chapter was in early 2003 to 2009. Between 2009 and 2010, a group of individuals who wanted to set up the ISOC Sri Lanka chapter elected me to be interim president. I drafted the articles of the ISOC chapter, and officially, ISOC recognized the Sri Lankan chapter on March 24th, 2011. Under my stewardship, ISOC-LK held the very first INET-Colombo in May of 2011, which was opened by Secretary to the President, Mr. Lalith Weeratunga. During my tenure, I promoted migration to IPV6. I served two years as the founding president of the Sri Lanka chapter, and I stepped down in early 2013.
I was appointed to the Advisory Council of ISOC-Sri Lanka Chapter in 2019.

b. Co-chair of Sinhala Generation Panel of ICANN
I had served on the board of directors of the LK domain registry since its inception. Also, I was an original subscriber to the incorporation of LK Domain Registry Foundation, which manages ccTLD of Sri Lanka,.LK. As a board director of LK Domain Registry and an advisory member of the Local Language of Technology Lab (LTRL) of UCSC, I took part in research into International Domain Names (IDNs). In the latter part of 2000, in parallel to Pan Localization Project, LK Domain Registry spearheaded releasing two ccTLDs, .ලංකා and .இலங்கை. Sri Lanka became the first country to release two Domains that are not in Roman Script. I also presented at ICANN 46 Beijing on IDNs and variants in April, 2013.
(https://www.picisoc.org/2013/04/18/report-on-picisoc-icann46-beijing/)

ICANN began working in earnest on Internationalized Domain Names (IDNs) after 2013, and Dr. Sarmad Hussain, who worked with us in Pan Localization Project, became the ICANN director on IDNs from the ICANN. He requested two of us, Dr. Ruvan Weerasinghe and me to lead the project in the drafting of Sinhala Generation Panel rules for Sinhala TLDs. We worked on the rules for six months and by the end of 2018, we submitted finalized rules to ICANN, and they were approved in 2019. I'm at present working on the second level domain rules, and we have dispatched them to ICANN for publication. I attended ICANN 64 in Barcelona to present the final presentation on Sinhala IDN rules for TLDs before their publication.

Software Development Unit (SDU)

In 1996, Prof. V.K. Samaranayake requested me to provide my expertise in Networking, Internet, and Database Management to some of the consultancies undertaken by the Institute of Computer Technology, a predecessor to UCSC. Also, I used the MSSQL Server/ MS Active Server (ASP) and Visual Basic version 5 in some consultancies. Some

of the new Microsoft technologies made the development cycle faster and reliable without memory leaks. The departure of the project lead of Software Development of External Resources of the Ministry of Finance in 2001 made the director appoint me as the project lead. Owing to my success in handling the project, the director of ICT who later assumed duties as the founding Director, UCSC realized importance of having a formal setup as an organizational structure to undertake Software Development consultancies. With the formation of UCSC, Prof. Samaranyake allowed me to set up the Software Development Unit of UCSC to fill in the vacuum, which I identified by the end of 1999. SDU undertook little more than a hundred Software Development and networking consultancies. It later evolved into Theekshana R & D by 2007, and SDU was closed down its operations in December 2018.
Ref: https://www.theekshana.lk/sdu-project-list/

Teaching:

1997-2003- Graduate Training Program
I conducted Rapid Application Development (RAD) techniques to develop Software Applications using Visual Basic and Active Server Pages-based Web Technology for the Graduate Training Program, a stopgap measure to covert graduates into ICT programmers in a short period of six months. Most trainees found jobs in Bluechip ICT companies in Sri Lanka.
1998-2004- Visual Basic Certificate Course (Five-training program)
I helped the Computer Servicing Center of the Institute of Computer Technology to restructuring Certificate Courses offering on Weekends. I started conducting a Certificate Course on Visual Basic which became very popular among school leavers. Since the course had a very big demand, I conducted two separate training programs on Saturdays and Sundays. In this course, I showed how to insert data using MSSQL Server and other DBMS such as MySQL, Postgress, MS-ACCESS, etc.
1999 -2005- I was appointed as Lecturer to teach Advanced Database Management System in the Post Graduate Diploma Couse. I sed MSSQL Server, Oracle, MySQL Server with advanced Structured Query Language.
2001 -2010- I was appointed as the Course Coordinator of Rapid Application Development in Client-Server Architecture for Bachelor of Information Technology (BIT) external Degree Program.
1998-2003 I was a resource person of the JICA funded Third Country Technical Corporation Program. I taught Visual Basic, JAVA, and ASP. Also, I helped the course coordinator to have two weeks of the residential workshop out of Colombo to develop their projects, which were later evaluated on the final day. I was in charge of the team who looked after the network, tutoring during the workshop, and helping their projects. Except in 1998, where the workshop was held in Polonnaruwa, others were held in Kandy. Most trainees came from Bangladesh, Bhutan, Cambodia, Laos, Myanmar, and some African countries, Papua New Guinea, Fiji, Pakistan, and Sri Lanka.
1998 – 2004- I had played a major role in DIAMN, Swedish CIDA funded the third country program for Network training for Africa.

Platforms:

I'm conversant with LINUX, UNIX and Windows flavours including Windows2000 server family. I configures CISCO routers, Some of protocol used are RIP, OSPF, etc. I have also configured Firewalls as well as Layer 2 and Layer 3 Switches.

Computer Languages, Frameworks and Database Management Systems:

BASIC, PASCAL, ASSEMBLY, JAVA, C/C++, PERL, PHP, FORTRAN, VB.NET and Visual Studio, C# PYTHON. Object C (Ardunio), JavaScript, JQuery, RUBY, R, Android Suites and React Native for Mobile Development, etc.

I'm conversant in DB2, Informix, MS SQL Server 7, 2000, 2005, 2008, etc. Oracle, MySQL, Postgres and MongoDB. I'm also conversant into latest Framework such as Bootstrap and version controls such as BitBucket, GIT, and Selenium, testing suites. I have also worked with Object Relational Mapping (ORM) frameworks such as Hibernate.

For Font making, I have used Font Lab, Fontographer, Fontforge, etc. Also I worked with Microsoft Visual Type Open Type Layout Tool (VOLT) for the creation rules in Open Type fonts of Sinhala Fonts.

Also I worked with HADOOP, MSSQL Server OLAP, Data Mining and XML, and older version XHTML, etc. I've more than thirty year experience in using Structured Query Language (ANSI SQL, PL/SQL,tSQL and Jet SQL) and the Relational Algebra. I have also used transactions in Database Management System for designing large transaction databases. When there had been large transactions volume, I developed application, using Load Balancers. For Geographical Information Systems (GISs), I have used Proprietary and Open Source Software, Arcinfo/ArcGIS and GRASS respectively.

New Technology

I have begun working on new Technology, namely Blockchains, Artificial Intelligence, and Big Data. Also, I worked with the Internet of Things (IoT) and how they can be used in Agriculture. Theekshana R & D, under my guidance, began a project with Bogawanthalawa to explore the possibility of using Blockchains to keep track of Organic Tea production in their estate---to track tea from field to the table. The project is in the initial stages of implementation.

In my spare time, I have been experimenting with IoT using Raspberry Pis and Arduino. I have experimented with Sinhala Optical Character Recognition (OCR) with Raspberry Pis as well. I have encouraged my staff to be trained and certified in Big Data handling and Blockchain especially, in Open Source platforms such as Hyperledger.

Research

Sinhala Unicode Development

I'm a local language development pioneer in the development of Unicode Sinhala fonts and Keyboard input standards. I was also a member of the Language Committees Fonts Committee of the CINTEC Internet Committee, etc. I'm a member of the Local Language Working Group (LLWG) since the inception. ICTA led the LLWG initiative since 2004. SDU, under my stewardship, developed www. fonts. lk and played a key role in the understanding of how to create Unicode Sinhala Fonts through my reseach. I developed rules for two Unicode Sinhala fonts, Sarasavi Unicode and Winni Hettigoda's fonts, and I was on the original standardization committee for SLS 1134 2nd Revision and edited the third revision of SLS 1134. In the third revision, I included Sinhala numerals in the SLS 1134.

Ref: https://www.language.lk/wp-content/uploads/2018/03/SLS-1134-2011.pdf

Ref: How ICT was enabled in Local Languages, Authored by Aruni Goonathileke, Pages 40, 79-88 https://www.ict-history.lk/wp-content/uploads/LLBook.pdf

Optical Character Recognition (OCR) for Sinhala

I worked on OCR for the last ten year on and off. SDU developed OCR software, which gave fairly good results using Tesseract on a volunteer basis. Having guided the training of Tesseract for different Sinhala fonts, I developed the frontend Software using PHP/Apache. Meanwhile, the LTRL of UCSC carried out Tamil training on Tesseract as a joint research project with the University of Jaffna.

Owing to the success of the project, the same team joined with Theekshana to submit for a tender published by ICTA. Having won the project, Theekshana carried out training of Tesseract with deep Learning.

Theekshana has decided to release the Deep Learning version of OCR to the public.

BioInformatics

In 1997, I began helping the Medical College of the University of Colombo. The two departments which worked with me had been Pharmacology and Biochemistry. The academics in those departments found me to be very easy to relate to my being trained as a Biochemist. Prof. Eric Karunanayke, the founding Director of Institut of Biochemistry, Molecular Biology and Biotechnology (www.ibmbb.ac.lk) worked with me throughout, and I designed the computer network (LAN and WAN) of IBMBB. My staff designed the IBMBB emblem under my guidance. Subsequently, I helped them to design Post

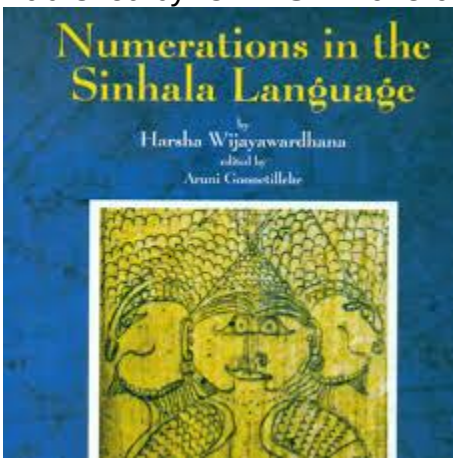
Graduate Courses in Biochemistry. Also, I helped them with DNA research as well.
https://www.parliament.lk/uploads/documents/paperspresented/annual_report_institute_of_biochemistry_molecular_biology_biotechnology_2012.pdf (Page 214)

Radio and TV Awareness Programs on ICT

In early 1997, the late Prof. Samaranayake, the Chairman CINTEC, requested me to get involved in a Radio Program which was known as "Internet Sampath Bavithaya". Subsequently, this program was to last more than 19 years, ending in 2016.
I participated in several TV programs on the Internet and resources on the Internet, which became very popular. I had written many newspaper articles, as well.

Publications:

"Numerations in the Sinhala Language"published on 23rd of November 2009. Published by ICTA ISBN: 978-955-1199-05-0



For more info…..

“Guide to Creating Sinhala and Tamil Unicode” This book guide you to create your own Unicode Font from Sinhala and Tamil
Edited By Harsha Wijayawardhana and Aruni Goonathileke
http://language.lk/wp-content/uploads/2017/11/Unicode-Fonts-Book.pdf

Scientific paper Publications:

I have several publications at International conferences in Sri Lanka and abroad including INET. Some of the papers are listed below:

Advantages as well as technical and logical issues in database applications when data is stored in Sinhala and Tamil Unicode, Conference on Localized Systems and Applications 2010, held in September 2010.

Sinhala Numerals; SOSAA3rd-International Congress Universityof Kelaniya Archaic Numerals in the Sinhala Language – National Archaeology Symposium, July 2009.

Implementation of Internet Domain Names in Sinhala, Asanka Wasala, Chamila Liyanage, Harsha Wijayawardhana and Ruvan Weerasinghe, 2008.

- Rendering of Unicode Sinhala Characters – Harsha Wijayawardhana(url : http://www.fonts.lk/pdf/workshop-unicodesinhala-harsha(1).pdf
- The Status of Information and Communication Technologies in Sri Lanka with special reference to the Networked World
- Benefits of Sri Lankan Rural Communities: a Sri Lankan initiative Based on inexpensive solutions
- Implementation of Internet technologies for rural communities in The third world: Kothmale Community Internet Radio Project

Virtual Village Project : Last mile connectivity options for Rural Telecentres in Sri Lanka (http://www.v-village.lk/index.php?option=com_content&task=view&id=86&Itemid=83)

(This was published by Virtual Village project as a Research Publication) Noise at Last Mile published by Fusion of Sarvodaya

The status of Open Source in Sri Lanka, AOSS, Hanoi, Vietnam

http://www.asia-oss.org/march2004/hanoi_presentation/present/poster/13SriLanka_poster.pdf

Sri Lankan Experiences in Government Computerization using Collaborative Model, eAsia 2007 KL,
Malaysia http://www.egovonline.net/egovasia/2007/review/view-contents.asp?id=egovAsia07/ABS/122

Presentations and New Paper publications

http://www.language.lk/wp-content/uploads/2017/11/Open-type-fonts-Harsha-May-6-04.pdf

https://www.facebook.com/watch/?v=145669979786607

https://en.wikipedia.org/wiki/Sinhala_numerals

https://helpcentre.lk/introduction-to-unicode-and-how-to-type-and-store-in-sinhala-using-unicode-fonts/

https://helpcentre.lk/english-paper-article-on-dailyft-about-introduction-to-unicode-and-how-to-type-and-store-in-sinhala-using-unicode-fonts-part-2/

https://helpcentre.lk/english-paper-article-on/

http://www.ft.lk/opinion/Evolution-of-the-Sinhala-script/14-706871

https://www.youtube.com/watch?v=UD0gkZvX3kA

https://www.unicode.org/L2/L2010/10312-sinhala-num.pdf

http://www.adaderana.lk/news.php?nid=33869

https://www.lankatalks.com/industry/technology/learn-turns-30-the-evolution-of-sri-lankas-1st-wide-area-network/

https://www.icann.org/en/system/files/files/proposal-sinhala-lgr-03jan18-en.pdf

https://www.readme.lk/icann-internet-sri-lanka/

https://issuu.com/basheerhamadshadrach/docs/academypublicationfinal1

https://egov4women.unescapsdd.org/country-overviews/sri-lanka/introduction

https://egov.eletsonline.com/2007/04/social-noise-at-the-technological-last-mile/

http://act.jinbo.net/airc/english/programe.html