

2nd Student Symposium Faculty of Computing

(KDUFOCSS-2021)

Program Booklet

17th December 2021 Via Zoom 2nd Student Symposium – 2021

Faculty of Computing

General Sir John Kotelawala Defence University 17th December 2021 Ratmalana, Sri Lanka.

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Editors:

Dr. TL Weerawardane

Dr. B Hettige

2nd Student Symposium, Faculty of Computing, General Sir John Kotelawala Defence University, Sri Lanka.

2021 - Agenda 17th December 2021

08.30 am: Welcoming Invitees

08.35 am: Welcome Address by the Dean, Faculty of Computing, General

Sir John Kotelawala Defence University

08.45 am: Address by the Chief Guest

09.00 am: Key Note Speech I

Dr. (Eng.) Thushara Weerawardane

General Sir John Kotelawala Defence University

09.45 am: Key Note Speech II

Assoc. Prof. N Sudha Bhuvaneswari

Dr. G.R Damodaran College of Science, Coimbatore, India

10.30 am: Technical Session – I

Parallel Sessions (IT, IS, CS, SE, CE)

12.30 pm: Lunch Break

13.00 pm: Project Exhibition

14.00 pm: Technical Session – II

Parallel Sessions (IT, IS, CS, SE, CE)

16.00 pm: Technical Session – III

Parallel Sessions (IT, IS)

18.00 pm: End of the Sessions

Message from the Conference Chair



Dr. Asela Gunasekara

Dean - Faculty of Computing

I am delighted that we have been able to organize the 2nd Student Symposium in Faculty of Computing (FOCSS) of General Sir John Kotelawala Defence University. FOCSS is a forum that brings the novel research ideas of our young undergraduates studying in Faculty of Computing under various domain of Computing, namely Information Technology, Information Systems, Computer Science, Computer Engineering, Software Engineering and Data Science. Hence, it is with great pride that I pen down my thoughts on this abstract book of 2nd FOCSS.

Inculcating professionalism in the workforce of country is essential for its national development, and it can only be achieved through a concerted effort especially by those involved in the education system. In this respect, FOC has clearly identified its role, and it is committed to the task of assisting the nation by grooming young students to bridge the gap between the need and the availability of a professional workforce to support the country's national development endeavor adequately. As the Dean of the Faculty, I am pleased to note that we strive to maintain internationally accepted standards in the development of our course curricula thus encouraging students in research and innovation. FOCSS is an ideal forum for them to showcase their uncommon innovative ideas and it exemplifies our commitment to enhancing of professionalism through collaboration.

Finally, let me congratulate all contributors and express my sincere wishes for a highly successful symposium , and I deeply believe that FOCSS will offer the participants a platform to exchange ideas, discover novel opportunities, reacquaint with colleagues and broaden their knowledge.

PLENARY SESSION

Chairperson	Dr. (Mrs.) N Wedasinghe
Rapporteur	Ms. NT Jayathilake
Zoom Link	https://us02web.zoom.us/j/4819613500?pwd=eU9uVUNmTlljRG1CTIFDUE9W0U9ndz09
Meeting ID	481 961 3500
Passcode	Focss@2021
00.00 am.	Voy Note Speech I
09.00 am:	Key Note Speech I
	Impact on the Digital Technologies on Future Industries
	Dr. (Eng.) TL Weerawardane
	Senior Lecturer Gr. I
	General Sir John Kotelawala Defence University
09.45 am:	Key Note Speech II
	Cyber Threat Intelligence
	Assoc. Prof. N Sudha Bhuvaneswari
	Associate Professor
	Dr. G.R Damodaran College of Science, Coimbatore, India
10.30 am:	Technical Session I (IT, IS, CS, SE, CE)

-Keynote Speech I-

Impact on the Digital Technologies on Future Industries

Dr. (Eng.) Thushara Weerawardane

Department of Computer Engineering, General Sir John Kotelawala Defence University, Sri Lanka

The process of the industry revolutionised over years from mechanisation to cyber physical systems. The productivity, cost and speed changes within the production process from material to finish product in time varying physical system. Globally, many industries face numerous challenges of handling uncertainties in supply & demand variation of the supply chain & logistics for both raw material and finish products. During manufacturing processes, the reliability of equipment & plant plays key roles to minimise the downtime from the performance and efficiency perspectives.

The rapid development in technology and automation created vast improvement in manufacturing systems by providing high quality product and services to a competitive market environment during the last century. Modern technology advancements have created a cyber physical environment in the industry through the integration of automated systems by providing reliable and ubiquitous connectivity among manufacturing processes and systems. With development of industrial internet of thing (IIOT) and AI based technologies, data becomes main fuel for many digital industries. The real-time information availability over the manufacturing process and systems, creates efficient and high-quality production platforms. AI technologies provide predictive maintenance and prescriptive analytics within manufacturing industries to create cost effective reliable systems. Currently many industries are moving towards the process of digital transformation within an integrated automated cyber-physical system in order to be competitive in the market.

-Keynote Speech II-

Cyber Threat Intelligence

Assoc. Prof. N Sudha Bhuvaneswari

Dr. G.R Damodaran College of Science, Coimbatore, India

Cyber Threat can be classified as Threats to National Security, E-crime, Data Theft, Denial of Service, Money Laundering-Organized Crime and the proliferation of weapons of mass destruction (WMD). The threat profile dates back to 1990-cyber-attack which was hit and run for fame and recognition-firewalls were used. Later for-profit making cybercriminals started attacking the system-targeted attacks. Cybercriminals have the desire, ability, patience and skills to invest their time and resources into these modern attacks to achieve financial gains. Malware is specially created based on the information gathered in the reconnaissance phase. Social engineering and phishing allow them to enter the organizations database easily. Cyber criminals even sell their tools to perform targeted attack as Software-as-service SAS in the dark web. Hackers for Hire-groups consist of professional and elite hackers, most of whom are very intelligent, calculated and, for lack of a better term, "best of breed."

Information Technology



INFORMATION TECHNOLOGY

Technical Session I

Chairperson	Dr. KGKG Kottegoda
Rapporteur	Ms. D Gunasekara
Zoom Link	https://learn.zoom.us/j/8927712635?pwd=VUNScTlxVDg4dFduUXpYL3pMUzRSdz09
Meeting ID	892 771 2635
Passcode	Focss@2021
10.30 am:	Image Processing Based Proposed Drone Application
	for Detecting And Analyzing Enemy Targets JADP Lakshantha, TL Weerawardane
10.50 am:	An Analysis of the Effectiveness of Using Face
	Recognition Algorithms to Enhance the Performance of
	Online Attendance Marking System
	MTA Wickramasinghe, D Ganepola
11.10 am:	An Analysis of Successfulness of the Features of
	Software Applications in Travel and Tourism Industry
	in Sri Lanka
	MP Akilani, N Wedasinghe
11.30 am:	Design and Development of Low-Cost IoT Based Early
	Elephant Detection System
	KU Munasinghe, MWP Maduranga
11.50 am:	Artificial Intelligence in Healthcare Industry
	R Mohamed, T Rathnayake
12.10 pm:	Summing up the Session
12.30 pm:	Lunch Break

INFORMATION TECHNOLOGY

Technical Session II

Chairperson	Major RMM Pradeep
Rapporteur	Eng. DB Wijesinghe
Zoom Link	https://learn.zoom.us/j/8927712635?pwd=VUNScTlxVDg4dFduUXpYL3pMUzRSdz09
Meeting ID	892 771 2635
Passcode	Focss@2021
14.00 pm:	Emotional Artificial Intelligence Approach to detect and
	manage Academic Stress
	CM de Alwis, KBA Madushi
14.20 pm:	Technology Involvement And Effectiveness For Online
	Learning During Covid-19 Pandemic
	S Navodya, N Wedasinghe
14.40 pm:	AI-Based Facial Emotion Recognition Video
_	Conferencing Feature Enabled Smart Learning
	Management System to Measure Degree of
	Comprehension
	SP Muthukuda Arachchi, R Samarawickrama, T Rathnayake
15.00 pm:	Music Therapy: Digital therapy Application for
	Depression & Anxiety
	DJK Pathirana, GIF de Silva
15.20 pm:	A Systematic Review and Comparative Study of
_	Cryptojacking Detection via Machine Learning
	MMNH Bandara, D Ganepola
15.40 pm:	Summing up the Session
16.00	
16.00 pm:	Technical Session III

INFORMATION TECHNOLOGY

Technical Session III

Chairperson	Mrs. SCM de Silva Sirisuriya
Rapporteur	Ms. GAD Ganepola
Zoom Link	https://learn.zoom.us/j/8927712635?pwd=VUNScTlxVDg4dFduUXpYL3pMUzRSdz09
Meeting ID	892 771 2635
Passcode	Focss@2021
16.00 pm:	Proposing Mobile voting application for Sri Lankan
	elections in the covid-19 pandemic situation
	LDS Tharaka, RMM Pradeep
16.20 pm:	Methods Using Land Valuation for Sri Lanka
	SM Athurupana, RMM Pradeep
16.40 pm:	Features Identification of Smart Ticketing and Seat
	Reservation System for Sri Lankan Railway
	SV Jayasuriya, I Udayangi
17.00 pm:	A Comparative Study on data anonymization
	techniques to ensure the data privacy
	EMSK Ekanayake, D Ganepola
17.20 pm:	A Comprehensive Review on Web Based Application for
	Herbal Cosmetics
	R Fernando
17.40 pm:	Summing up the Session
18.00 pm:	End of the Conference

Information Systems



INFORMATION SYSTEMS

Technical Session I

Mrs. PRD Wijesinghe	Chairperson	Dr. GACN Priyadarshani
Meeting ID Passcode Focss@2021 10.30 am: Factors Affecting User Acceptance of Mobile Banking Applications in Sri Lanka A Geethmi, T Rathnayake 10.50 am: Automated Disaster Management Assistant System to Improve the Performance of Divisional Secretariats in Sri Lanka BP Ariyarathana, WAAM Wanniarachchi 11.10 am: Problems faced by school teachers during the Covid-19 pandemic in Sri Lanka and their solutions from an IT perspective SH Buddhadasa, WAAM Wanniarachchi 11.30 am: Designing Web – Based School Management System For Sri Lankan Schools LDTT De Silva, N Wedasinghe, GIF De Silva 11.50 am: A review of security aspects of ATM transaction in banking sector KA Wijesuriya, N Wedasinghe Summing up the Session	Rapporteur	Mrs. PRD Wijesinghe
Meeting ID Passcode Focss@2021 10.30 am: Factors Affecting User Acceptance of Mobile Banking Applications in Sri Lanka A Geethmi, T Rathnayake 10.50 am: Automated Disaster Management Assistant System to Improve the Performance of Divisional Secretariats in Sri Lanka BP Ariyarathana, WAAM Wanniarachchi 11.10 am: Problems faced by school teachers during the Covid-19 pandemic in Sri Lanka and their solutions from an IT perspective SH Buddhadasa, WAAM Wanniarachchi 11.30 am: Designing Web – Based School Management System For Sri Lankan Schools LDTT De Silva, N Wedasinghe, GIF De Silva 11.50 am: A review of security aspects of ATM transaction in banking sector KA Wijesuriya, N Wedasinghe Summing up the Session		
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KA Wijesuriya, N Wedasinghe 12.10 pm: Summing up the Session	11.50 am:	A review of security aspects of ATM transaction in
12.10 pm: Summing up the Session		banking sector
12.00 pm: Lunch Break	12.10 pm:	Summing up the Session
12.00 pm: Lunch Break	-	
Lunch Dicun	12.00 pm:	Lunch Break

INFORMATION SYSTEMS

Technical Session II

Chairperson	Dr. HRWP Gunathilake
Rapporteur	Ms. T Rathnayake
Zoom Link	https://learn.zoom.us/j/9878338469?pwd=UkV2bnZkVENCU2diam1ITG5kbFIYUT09
Meeting ID	987 833 8469
Passcode	Focss@2021
14.00 pm:	Effective Utilization for the Online Learning Platform
	RG Jayawardhana, SCM de Silva Sirisuriya
14.20 pm:	Covid-19's Impact on Online Banking and E-Payment
14.20 pm.	
	Usage
	SR Keerthisinghe
14.40 pm:	Proposing Mobile App Design for the Online Teaching-
	Learning in Sri Lankan Schools
	AM Rajapaksha, GIF De Silva
15.00 pm:	The Impact of E. Marketing to Business and Customer
15.00 pm.	Satisfaction
	HH Jayapathirana
15.20 pm:	Effects Of E-Commerce in the current scenario of
	Marketing
	JC Senevirathne, DB Wijesinghe
15.40 pm:	Summing up the Session
16.00 pm:	Technical Session III

INFORMATION SYSTEMS

Technical Session III

Chairperson	Dr. (Mrs.) N Wedasinghe
Rapporteur	Mrs. K B A Madushi
Zoom Link	https://learn.zoom.us/j/9878338469?pwd=UkV2bnZkVENCU2diam1ITG5kbFIYUT09
Meeting ID	987 833 8469
Passcode	Focss@2021
16.00 pm:	How Information Technology Has Made Advertising
	More Appealing And Authentic To The Consumer
	IP Aponsu, N Wedasinghe
16.20 pm:	Music Artist Recommendation System For Select
	Human Resources For Music Production
	BB Dissanayake
16.40 pm:	Review on Existing Digital Banking Applications and
	Customer Satisfaction
	MH Hettiarachchi, SR Bandara
17.00 pm:	A case study on Contemporary Issues in Sri Lankan
	Startup Ecosystem: Technological Toolbox as pillars of
	Support
	MH Weerasekara, PRD Wijesinghe
17.20 pm:	The Challenges of Online Education
	D Shehan
17.40 pm:	Summing up the Session
18.00 pm:	End of the Conference

Computer Science



COMPUTER SCIENCE

Technical Session I

Chairperson	Dr. HL Premarathne
Rapporteur	Ms. RGC Upeksha
Zoom Link	https://us02web.zoom.us/j/9086202055?pwd=R3JvL2xCbWJWR0NIRFIXV1hKUGFndz09
Meeting ID	908 620 2055
Passcode	Focss@2021
10.30 am:	Data retrieval and analysis from Facebook to identify
	suspicious profiles using machine learning: A
	Literature Review
	SV Wijesekara, NT Jayathilake, TL Weerawardane
10.50 am:	A Systematic Review on Secure Data Transmission in
	the Cloud Using Steganographic Techniques and
	Cryptographic Algorithms
	SAK Anudini, G Shanmuganathan, TL Weerawardane
11.10 am:	A review for a system to detect and notify phishing
	attacks in mobile phones
	H Nethmini, NT Jayathilake, TL Weerawardane
11.30 am:	Real-time Sign Language Recognition System for Sign
	Language to Text Translation: A Review
	PADA Seneviratne, SCM de Silva Sirisuriya, N Wedasinghe
11.50 am:	Crop Disease Alert System
	HI Ekanayaka, PPNV Kumara
12.10 pm:	Skin Disease Detection and Classification Using
	Machine Learning Techniques
	D Gunathilake, WMKS Ilmini, GAI Uwanthika
12.30 pm:	Lunch Break

COMPUTER SCIENCE

Technical Session II

Chairperson	Mrs. WPJ Pemarathne
Rapporteur	Ms. FS Sourjah
	http://www.harana.com//
Zoom Link	https://us02web.zoom.us/j/9086202055?pwd=R3JvL2xCbWJWR0NIRFIXV1hKUGFndz09
Meeting ID	908 620 2055
Passcode	Focss@2021
14.00 pm:	Limitations of doing a Stock Market Analysis in Sri
	Lanka: A Review
	TLN Nadeeshana, WMKS Ilmini, M Lakmali
14.20 pm:	A Systematic Review on Digital Signature Verification
	and Modern Development
	HMSS Dissanayake, TL Weerawardane, RGC Upeksha
14.40 pm:	Secure data transformation in cloud using ECC and RSA:
	A review
	T Hansika, RGC Upeksha, TL Weerawardane
15.00 pm:	Enhancement in Aviation Security using Human Pose
_	Recognition: A Review
	AS Silva, DMR Kulasekara
15.20 pm:	An Approach to EEG based Emotion Recognition using
-	Machine Learning
	ABL Kalhari, LP Kalansooriya
15.40 pm:	Comparison Analysis and Data Retrieval to identify the
•	associated people of Instagram by Image Processing SL Jayakody, NT Jayathilake, TL Weerawardane
16.00 pm:	End of the Session

Software Engineering



SOFTWARE ENGINEERING

Technical Session I

Chairperson	Dr. LP Kalansooriya
Rapporteur	Mrs. JJRS Fernando
Zoom Link	https://learn.zoom.us/j/7578402390?pwd=SHMwZmJXVUtzZVdjalhKUE0xM2xtQT09
Meeting ID	757 840 2390
Passcode	Focss@2021
10.30 am:	Mobile-Based Skin Disease Diagnosis System Using
	Convolutional Neural Networks (CNN)
	D Nandasena, MWP Maduranga
10.50 am:	Technologies and Tools for Implementing a Mobile
	Pharmacy: A Review
	NC Perera, PMK Madushanka, HRWP Gunathilaka
11.10 am:	Security Vulnerabilities of E-learning Platforms: A
	Review
	PH Perera, M Sirisuriya, HRWP Gunathilaka
11.30 am:	A Review on Existing Health Care Monitoring Chatbots
	H Piumali
11.50 am:	Models, Developments, Trends, and Evaluation of
	Software Product Qualities: A Review
	C Wanigasooriya, S Madushanka, FR Fernando, FS Sourjah, RGC
	Upeksha
12.10 am:	Blockchain-based Intellectual Property Management
	Using Smart Contracts
	C Wanigasooriya, ADAI Gunasekara, KGKG Kottegoda
12.30 pm:	Lunch Break

KDUFOCSS2021

SOFTWARE ENGINEERING

Technical Session II

Chairperson	Dr. HRWP Gunathilake
Rapporteur	Mrs. ERC Sandamali
Zoom Link	https://learn.zoom.us/j/7578402390?pwd=SHMwZmJXVUtzZVdjalhKUE0xM2xtQT09
Meeting ID	757 840 2390
Passcode	Focss@2021
14.00 pm:	Analysing Of Fake Voice Detecting Using Deep Learning
-	TD Mackonal, R Fernando, TL Weerawardane
14.20 pm:	Real Time Face Mask Monitoring And Automated Alert
-	System To Prevent COVID-19 Spread
	B Weeraethne
14.40 pm:	Data extraction and efficient storing of PDF in a
	database: A Review
	AMPDS Aludeniya, RGC Upeksha, TL Weerawardane
15.00 pm:	Securing IoT Devices Using Blockchain Technology: A
	Review
	EMNM Ekanayake, WPJ Pemarathne
15.20 pm:	Local Host Web Application for Pre Anesthesia Record
	System
	IRN Gamage
15.40 pm:	Stay Focus: An Android Application for Smartphone Addiction Monitoring and Preventing SG Abeykoon, WMKS Ilmini
16.00 pm:	End of the Session

Computer Engineering



COMPUTER ENGINEERING

Technical Session I

Chairperson	Dr. TL Weerawardane
Rapporteur	Ms. NT Jayathilake
Zoom Link	https://us02web.zoom.us/j/4819613500?pwd=eU9uVUNmTlljRG1CTlFDUE9W0U9ndz09
Zoom Link	Inttps://usozweo.zooiii.us/j/+017013300:pwu-eo7uv0iviii11ijku1c1ii 90L7w007iiuz07
Meeting ID	481 961 3500
Passcode	Focss@2021
10.30 am:	A Study on Real-Time License Plate, Vehicle Type and
	Face Recognition
	NV Pethiyagoda, OR Zain, TL Weerawardane, MWP Maduranga,
	DMR Kulasekara
10.50 am:	An Overview of Information Technology based Vehicle
	Management Systems (VMSs)
	N Dabarera, NT Jayatilake, RHNS Jayathissa, TL Weerawardane
11.10 am:	Non-invasive Blood Glucose Monitoring System Using
	Painless Near InfraRed Based Technique Linear
	Regression Analysis
	N Wickramarathna, WMKS Ilmini, B Hettige
11.30 am:	Emotion Recognition Techniques and Tools: A Review
	S de Silva, B Hettige
11.50 am:	i-Walk - Smart Navigator System in indoor For Visually
	impaired people
	V Bandaranayaka, DMR Kulasekara
	,
12.10 pm:	Feasibility Study on Using NB-IoT For Animal Health
	Monitoring
	TD Rajapakse, MWP Maduranga
12.20	Lungh Duggle
12.30 pm:	Lunch Break

COMPUTER ENGINEERING

Technical Session II

Chairperson	Dr. EATA Edirisuriya
Rapporteur	Mrs. RHNS Jayathissa
Zoom Link	https://us02web.zoom.us/j/4819613500?pwd=eU9uVUNmTlljRG1CTlFDUE9W0U9ndz09
Meeting ID	481 961 3500
Passcode	Focss@2021
14.00 pm:	A Review on Vision-based Obstacle Avoidance and
	Assistant Systems for Visually Impaired People
	KLH Imesha, G Shanmuganathan, B Hettige
14.20 pm:	A Study of Unstructured Data Analysis
	VR Weerasekara, G Shanmuganathan, TL Weerawardane
14.40 pm:	Traffic Density Analysis using Image Processing: A
	Review
	TGTM Jayawickrama, G Shanmuganathan, EATA Edirisuriya
15.00 pm:	IoT based Parking Management and Guidance System
	using Image Processing
	ML Karunathilake, EATA Edirisuriya, RHNS Jayathissa
15.20 pm:	Personal Intelligent Natural Language Assistant for
	Sinhala Language
	PK Jayaratne, B Hettige
15.40 pm:	Smart Receptionist with Smart Lock System - Review
	KABN Tharaka, MAST Goonatilleke
16.00 pm:	End of the Session

Plenary Session

Zoom Link:

https://us02web.zoom.us/j/4819613500?pwd=eU9uVUNmTlljRG1CTlFDU E9WOU9ndz09

Meeting ID: 481 961 3500

Passcode: Focss@2021

Technical Sessions

Information Technology - Technical Session I, II, III

Zoom Link:

 $\frac{https://learn.zoom.us/j/8927712635?pwd=VUNScTlxVDg4dFduUXpYL3p}{MUzRSdz09}$

Meeting ID: 892 771 2635

Passcode: Focss@2021

Information Systems – Technical Session I, II, III

Zoom Link:

https://learn.zoom.us/j/9878338469?pwd=UkV2bnZkVENCU2diam1ITG5kbFlYUT09

Meeting ID: 987 833 8469

Passcode: Focss@2021

Computer Science - Technical Session I, II

Zoom Link:

https://us02web.zoom.us/j/9086202055?pwd=R3JvL2xCbWJWR0NIRFlXV1hKUGFndz09

Meeting ID: 908 620 2055

Passcode: Focss@2021

Software Engineering – Technical Session I, II

Zoom Link:

https://learn.zoom.us/j/7578402390?pwd=SHMwZmJXVUtzZVdjalhKUE0x M2xtQT09

Meeting ID: 757 840 2390

Passcode: Focss@2021

Computer Engineering - Technical Session I, II

Zoom Link:

https://us02web.zoom.us/j/4819613500?pwd=eU9uVUNmTlljRG1CTlFDU E9WOU9ndz09

Meeting ID: 481 961 3500

Passcode: Focss@2021

Main Organizing Committee

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Dr. ADAI Gunasekara, Dean, Faculty of Computing, General Sir John Kotelawala Defence University.

Conference Co-chairs

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Dr. LP Kalansooriya, Department of Computer Science

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Major. RMM Pradeep, Department of Information Technology

Dr. KGKG Kottegoda, Department of Computational Mathematics

Dr. GACN Priyadarshani, Department of Computational Mathematics

Panel of Reviewers

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Mr. RPS Kathriarchchi, Department of Information Technology

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