



**“Science, Technology and innovations
for Sustainable Development”**

3rd Student Symposium

Faculty of Computing

(KDUFOCSS-2023)

Programme Booklet

18th January 2023

3rd Student Symposium – 2023

18th January 2023

Faculty of Computing

General Sir John Kotelawala Defence University

Ratmalana,

Sri Lanka.

© 2023 January

All rights reserved. No part of this publication may be reproduced or quoted in any form or by any means, electronic or mechanical, including photocopying, recording or by any information storage or retrieval system, without permission in writing from the Faculty of Computing, General Sir John Kotelawala Defence University.

The materials in this publication have been supplied by the respective authors, and the views expressed remain the responsibility of the named authors. The statements and opinions stated in these publications do not necessarily represent the views of the Faculty of Computing, General Sir John Kotelawala Defence University.

3rd Student Symposium, Faculty of Computing, General Sir John Kotelawala
Defence University, Sri Lanka.

FOCSS2023 – Conference Program

Date: 18th January 2023

Venue: Auditorium – Faculty of Graduate Studies

- 08.30 Hrs: Welcoming Invitees
- 09.00 Hrs: Arrival of the Chief Guest
- 09.01 Hrs: KDU Anthem
- 09.05 Hrs: One-Minute Silence in Honour of Fallen War Heroes
- 09.08 Hrs: Lighting of the Traditional Oil Lamp and Pooja Dance
- 09.13 Hrs: Curtain Raiser Video and Compere Introduction Video
- 09.18 Hrs: Welcome Address – Dean Faculty of Computing
- 09.25 Hrs: Keynote Speech I – Dr. Ajantha Athukorala
- 09.45 Hrs: Partner Video – CSSL and GenZ Chapters KDU
- 09.50 Hrs: Keynote Speech II – Prof. EUN Chang Choi
- 10.10 Hrs: Speech of Chief Guest
- 10.20 Hrs: Plaque Presentation
- 10.25 Hrs: Vote of Thanks
- 10.29 Hrs: National Anthem
- 10.30 Hrs: Refreshment
- 11.30 Hrs: Technical Session – I (Suranimala Building)
Parallel Sessions (IT, IS, CS, SE, CE) -
- 14.00 Hrs: Technical Session – II, III (Suranimala Building)
Parallel Sessions (IT, IS, CS, SE, CE)
- 16.00 Hrs: End of the Sessions



“Science, Technology and innovations for Sustainable Development”

18th January 2023

Session Tracks	Session Venues	Links
Inaugural Session	Auditorium - FGS	Meeting ID: 867 7009 1586 Passcode: 949959
Information Technology	Suranimala – Class A	IT - A Meeting ID: 825 5543 2549 Passcode: 162401
		IT - B Meeting ID: 873 9806 2778 Passcode: 384097
	IT - C	QA Room Meeting ID: 897 7973 9277 Passcode: 852882
Information Systems	Suranimala – Class B	IS - A Meeting ID: 842 2978 1373 Passcode: 331272
		IS - B Meeting ID: 233 259 3396 Passcode: is@focss
Computer Science	CCNA Lab	CS - A Meeting ID: 879 2795 1876
		CS - B Passcode: 225570
Software Engineering	Suranimala – Class C	SE - A Meeting ID: 882 9826 2505
		SE - B Passcode: 597896
Computer Engineering	Medical Faculty – 5 th Floor	CE - A Meeting ID: 757 840 2390
		CE - B Passcode: Coe@1234

Information Technology



INFORMATION TECHNOLOGY

Transdisciplinary Research for Digital Transformations

IT-A

Chairperson : Mr. RPS Kathriarachchi		
Rapporteur : Ms. BMTN Rathnayake		
Zoom Link : https://us02web.zoom.us/j/82555432549?pwd=ZDNDRG5uWlNRWVRwQkYcO9KTU5ZZz09		
Meeting ID : 825 5543 2549 Passcode : 162401		
Location : Suranimala Building – Class A		
11.30–11.50 Hrs	A Methodical and Comparative Study for Identify a Solution through Artificial Intelligence for Detection of Visual Impairment in Toddlers and Preschoolers <i>MHK Sammani, DU Vidanagama</i>	59
11.50 – 12.10 Hrs	Rule-based Facial Makeup and Professional Beauty Tip Recommendation System using Image Processing <i>DIN Dahanayake, DU Vidanagama</i>	124
12.10 – 12.30 Hrs	A Solution to Overcome the Student’s Smart Phone Addiction and Misuse <i>AC Meepage, GAD Ganepola</i>	60
12.30 – 12.50 Hrs	Impact of online hospital management system related to patient registration, Ambulance Management System and appointment making <i>KAUI Senevirathne, BMTN Rathnayake</i>	90
12.50 – 13.10 Hrs	An Empirical Study About the Effect of the Technological Advances on the Sri Lankan Tourism Industry <i>UWTM Fernando, BMTN Rathnayake</i>	76
13.10 – 13.30 Hrs	Pet4Care: Identifying the techniques used to find and track lost pets and proposing the most precise application <i>WM Subasinghe , N Wedasinghe</i>	119
13.30 – 13.35 Hrs	Summing up the Session	
13.35 – 14.00 hrs	Lunch Break	

INFORMATION TECHNOLOGY

Disruptive Innovations for National Development

IT-B

Chairperson : Ms DU Vidanagama		
Rapporteur : Mr. DPM Lakshan		
Location : Suranimala Building – Class A		
Zoom Link : https://us02web.zoom.us/j/87398062778?pwd=NUdYd05mYXRyL1dwTk1qZE1oK2EwQT09		
Meeting ID : 873 9806 2778 Passcode : 384097		
14.00–14.20 Hrs	An Analysis of the Effectiveness of using Augmented Reality to Enhance the Performance of Footwear Shopping Applications <i>SIDN de Silva, D Gunasekera</i>	104
14.20–14.40 Hrs	A study on rounded corners is more attractive in modern UI design <i>SKD Senevirathne, WAAM Wanniarachchi</i>	82
14.40–15.00 Hrs	Artificial Intelligence-related Mobile Application for Smart Intercity Bus Tracking and Booking System in Sri Lanka <i>WMNNC Wanninayaka, DU Vidanagama</i>	55
15.00–15.20 Hrs	A Systematic and Comparative Review for Identify and Provide Solution through AI for Skin Diseases of Stray Dogs <i>AANHP Perera, DU Vidanagama</i>	56
15.20–15.40 Hrs	An Image Recognition System for Crop Disease Identification of Paddy Fields in Sri Lanka <i>MA Hettiarachchi, N Wedasinghe</i>	92
15.40–16.00 Hrs	Kidney Matching Mobile Application using Artificial Intelligence <i>RAMK Rupasinghe, DU Vidanagama</i>	111
16.00–16.05 Hrs	Summing up the Session	

INFORMATION TECHNOLOGY

Digital Frameworks to Accelerate the Custom-Build Platforms

IT-C

Chairperson : Maj RMM Pradeep		
Rapporteur : Ms. LDTT de Silva		
Location : Suranimala Building – QA Room		
Zoom Link : https://us02web.zoom.us/j/89779739277?pwd=OXNKY3BIMEZFNndUWm1DcGZ3dHNsdz09		
Meeting ID: 897 7973 9277 Passcode: 852882		
14.00–14.20 Hrs	Study of the Factors of Employees’ Behavior towards Information Security in Sri Lanka Army <i>CG Hewawasam, WAAM Wanniarachchi</i>	66
14.20–14.40 Hrs	Enhancing Sri Lankan Tourism: Addressing Linguistic Barrier under the Aegis of QR Technology & Machine Translation <i>JAS Indrachapa, BMTN Rathnayaka</i>	127
14.40–15.00 Hrs	Propose an Automated Calculation System for Long-Range Marksman in Sri Lanka <i>MR Ariyathna, D Gunasekera</i>	69
15.00–15.20 Hrs	Automated Toll Collection and Accident Detection System <i>RD Weedagama , DU Vidanagama</i>	73
15.20–15.40 Hrs	Research Direction for Automated online and offline hiking and camping supported website <i>DMTG Disanayake, N Wedasinghe</i>	99
15.40–16.00 Hrs	The purpose of a Swimming web portal for Sri Lanka: An Analysis <i>KBI Rupasinghe, WAAM Wanniarachchi</i>	115
16.00–16.20 Hrs	Evolution of Online Trading Marketing in Sri Lanka <i>AMR Adithya, N Wedasinghe</i>	45
16.20–16.25 Hrs	Summing up the Session	

Information Systems



INFORMATION SYSTEMS

Information System Applications for Sustainable Development

IS-A

Chairperson : Dr. N Wedasinghe		
Rapporteur : Ms. MVT Kawya		
Location : Suranimala Building – Open Source Research Laboratory (Class -E)		
Zoom Link : https://us02web.zoom.us/j/84229781373?pwd=VOZKUEVpcElUb1dITm9DeUhFVEtkUT09		
Meeting ID: 842 2978 1373 Passcode: 331272		
11.30–11.50 Hrs	AI Based Crowdfunding Platform Secured with Smart Contract as a Mean of Encouraging Entrepreneurs of Sri Lanka <i>PHPD Hewage, PRD Wijesinghe</i>	38
11.50 – 12.10 Hrs	A Systematic Review and Comparative Study of Stock Market Prediction and Algorithmic Trading via Machine Learning <i>PHP Danilya Hewage, DU Vidanagama</i>	39
12.10 – 12.30 Hrs	Higher Education: Virtual and Physical Course Management System <i>PVL Perera, N Wedasinghe</i>	106
12.30 – 12.50 Hrs	An analysis of Japanese Bot to evaluate the Japanese Language Proficiency Test in Sri Lanka <i>KC Rajapaksha, WAAM Wanniarachchi</i>	117
12.50 – 13.10 Hrs	IoT based Safety Management System through Smart Street Lightning: A Step Toward the Humanistic Society's Safety for Women <i>MWASN Perera, N Wedasinghe</i>	123
13.10 – 13.30 Hrs	How Internet of Things Affect Smart Agriculture <i>WGT Heshan, MWP Maduranga</i>	126
13.30 – 13.35 Hrs	Summing up the Session	
13.35 – 14.00 Hrs	Lunch Break	

INFORMATION SYSTEMS

*Emerging trends in Technology for Economic Growth,
Community Well Being and Environmental Sustainability*

IS -B

Chairperson : Ms. PRD Wijesinghe		
Rapporteur : Ms GAD Ganepola		
Location : Suranimala Building – Open Source Research Laboratory (Class -E)		
Zoom Link : https://us02web.zoom.us/j/2332593396?pwd=R3cvTjFsTzlkNEdhZ2NEV0x4ZVpLUT09		
Meeting ID: 233 259 3396 Passcode: is@focss		
14.00–14.20 Hrs	Critical Analysis of E-Commerce Infrastructure in Sri Lanka: Challenges and Potential Directions for Development <i>JMSK Bandara, N Wedasinghe</i>	32
14.20–14.40 Hrs	Disease Diagnosing System for Vegetable Crop Cultivation Based on Image Processing <i>RDHD Fernando, N Wedasinghe</i>	78
14.40–15.00 Hrs	Supermarket Product Positioning System to Locate Groceries and Products <i>KHNN Perera. PRD Wijesinghe</i>	50
15.00–15.20 Hrs	Solution to Search, Direct, and Locate a Book in a Book Fair <i>RC Nawanjana, N Wedasinghe</i>	68
15.20–15.40 Hrs	Analysis to Find Efficient Stock Market Prediction System <i>HMBM Herath, WAAM Wanniarachchi</i>	118
15.40–16.00 Hrs	Guided Approach to Automate the Hospital Pharmacy Management System <i>JMDC Jayamanna, N Wedasinghe</i>	132
16.00–16.20 Hrs	Decision Support System for Local A/L Path Selection based on Knowledge Management Concept <i>MTRR Sirithunga, N Wedasinghe</i>	131
16.20–16.25 Hrs	A Web Portal for Buying & Selling Coconut Products and Services Domestically <i>RMPB Rathnayake, N Wedasinghe</i>	35
16.25–16.30 Hrs	Summing up the Session	

Computer Science



COMPUTER SCIENCE

Artificial Intelligence & Enabling Technologies

CS –A

Chairperson : Dr. LP Kalansooriya		
Rapporteur : Ms. RHNS Jayathissa		
Location : Suranimala Building CCNA Lab		
Zoom Link : https://us02web.zoom.us/j/87927951876?pwd=UGwwblE5K0hBYU1GQnk1YllTWnZpUT09		
Meeting ID: 879 2795 1876, Passcode: 225570		
11.30 –11.50 Hrs	Applications of Wireless Sensor Networks and Object Detection in Precision Agriculture: A Review <i>UI Abeyasinghe, WMKS Ilmini, NT Jayathilake</i>	6
11.50 – 12.10 Hrs	Music Recommendation using Personality Prediction with Machine Learning <i>MTA Deen, WMKS Ilmini</i>	10
12.10 – 12.30 Hrs	Prevention of Cyberbullying Using Machine Learning: A Review <i>TWLA Perera, TL Weerawardane, RGC Upeksha</i>	44
12.30 – 12.50 Hrs	Route Optimization with Fleet Management <i>MRC Fernando, MPKT Perera, SP Jayasekara, MDL Bandara, TL Weerawardane</i>	12
12.50 – 13.10 Hrs	A Review of Diet Recommendation systems: with a Focus on Development Approaches <i>PHN Muthumali, WMKS Ilmini, SCMDS Sirisuriya</i>	18
13.10 – 13.30 Hrs	Blockchain-based Medication Supply Chain Tracking: A Systematic Review <i>GMT Amarasinghe, HRWP Gunathilake</i>	42
13.30 – 13.35 Hrs	Summing up the Session	
13.35 – 14.00 Hrs	Lunch Break	

COMPUTER SCIENCE

Computer Solutions to National Development

CS-B

Chairperson : Dr (Mrs) HRWP Gunathilake		
Rapporteur : Ms. BMTN Rathnayake		
Location : Suranimala Building CCNA Lab		
Zoom Link : https://us02web.zoom.us/j/87927951876?pwd=UGwwbLE5K0hBYU1GQnk1YllTWnZpUT09		
Meeting ID: 879 2795 1876, Passcode: 225570		
14.00–14.20 Hrs	Fatigue Detection of Air Traffic Controllers <i>AS Silva, N Wedasinghe</i>	135
14.20–14.40 Hrs	Health Prediction and Monitoring with the use of Electronic Medical Records (EMR)- A Review <i>SP Jayasekera, LP Kalansooriya</i>	11
14.40–15.00 Hrs	Home Garden base Ayurvedic Plant Identification system using CNN, a Review <i>NTD Dharmasiri, WMKS Ilmini</i>	2
15.00–15.20 Hrs	Identification of Related Technologies Associated with Asthmatic Wheeze Detection Systems - A Review <i>DP Deraniyagala, GAI Uwanthika, MKP Madushanka</i>	7
15.20–15.40 Hrs	A Comprehensive Review on Suitable Image Processing and Machine Learning Technique for Disease Identification of Tomato and Potato Plants <i>DMR Kulasekara, NT Jayathilake, NS Wisidagama</i>	4
15.40–16.00 Hrs	Identification of the Software Development Methodology for a Home Garden Based Ayurvedic Plant Identification System using CNN <i>NTD Dharmasiri, RMM Pradeep</i>	3
16.00- 16.05 Hrs	Summing up the Session	

Software Engineering



SOFTWARE ENGINEERING

Natural Language Processing & Applications

SE -A

Chairperson : Dr. Aris Lgnacio		
Rapporteur : Ms. SMM Lakmali		
Location : Suranimala Building Class - C		
Zoom Link https://us02web.zoom.us/j/88298262505?pwd=Q2pSQ0Qrc3gyVjdRNXBVU3ZlId0JwZz09		
Meeting ID: 882 9826 2505 Passcode: 597896		
11.30 -11.50 Hrs	A Review of Highway Bus Arrival Time and Route Prediction System <i>PKBTD Pallawala, MKP Madushanka</i>	15
11.50 - 12.10 Hrs	A Review on Product Price Comparison System Based on Sri Lankan Supermarkets <i>JP Kodithuwakku, SCMDS Sirisuriya, MKP Madushanka</i>	16
12.10 - 12.30 Hrs	A Review on Machine Learning Frameworks on Venture Capital Investments <i>PR Waidyaratne, DU Vidanagama</i>	17
12.30 - 12.50 Hrs	A Review of Deep Learning-Based System for Automatic Detection of Obstructive Sleep Apnea in Adults <i>RDAV Thennakoon, LP Kalansooriya, GAI Uwanthika</i>	19
12.50 - 13.10 Hrs	Identifying a Software Process Model for Book Tracking System for Books Available in Bookstores <i>PDCJ Paranagama , RMM Pradeep</i>	21
13.10 - 13.30 Hrs	A Review on Automatic Number Plate Recognition (ANPR) Systems <i>RMDKN Rathnayake, LP Kalansooriya</i>	22
13.30 - 13.35 Hrs	Summing up the Session	
13.35 - 14.00 Hrs	Lunch Break	

SOFTWARE ENGINEERING

Data Analytics for Future Sustainable Development

SE - B

Chairperson : Ms. SCMDS Sirisuriya		
Rapporteur : Ms. K Anuradha		
Location : Suranimala Building Class - C		
Zoom Link https://us02web.zoom.us/j/88298262505?pwd=Q2pSQ0Qrc3gyVjdRNXBVU3ZlId0JwZz09		
Meeting ID: 882 9826 2505 Passcode: 597896		
14.00–14.20 Hrs	A Comparative Study on Centralized Solution for Bookstores <i>PDCJ Paranagama, B Hettige, SCMDS Sirisuriya</i>	24
14.20–14.40 Hrs	A review of technologies adopted in event management systems <i>RGN Chathuranga, WMKS Ilmini</i>	26
14.40–15.00 Hrs	Classification of The Different Technologies, Functions and Usability of Blood and Organ Donating Applications – A Review <i>HHAMI Hettiarachchi, GAI Uwanthika, MKP Madushanka</i>	30
15.00–15.20 Hrs	Review paper on Vessel Planning Algorithms and Technologies <i>VI Samarasinghe, ADAI Gunasekara</i>	33
15.20–15.40 Hrs	A Systematic Review on Blockchain Based Ridesharing System <i>LHD Tharuka, HRWP Gunathilake</i>	41
15.40–16.00 Hrs	A Review on Fake News Detection using Machine Learning Techniques <i>RWBMP Nishadi, HRWP Gunathilake</i>	52
16.00- 16.05 Hrs	Summing up the Session	

Computer Engineering



COMPUTER ENGINEERING

Deep Learning & Data Engineering

CE -A

Chairperson : Dr. B Hettige		
Rapporteur : Ms.MAST Goonatilleke		
Location : Suranimala Building Electronic & Simulation Lab (Class – E)		
Zoom Link: https://learn.zoom.us/j/7578402390?pwd=ZnQyTmJ5VFhJOWQ4WXdlR2huWHBwZz09		
Meeting ID: 757 840 2390 Passcode: Coe@1234		
11.30 – 11.50 Hrs	Prevention of Foot Ulceration in Diabetes Patients using Foot Plantar Pressure Mapping Insole System: A Short Review <i>DSS Jithmisha, MWP Maduranga</i>	20
11.50 – 12.10 Hrs	RSSI and Machine Learning-Based Localization System for Smart Cities: A Short Review <i>RMMR Rathnayake, MWP Maduranga</i>	62
12.10 – 12.30 Hrs	A Robotic Approach to Design an Automatic Marionette Puppet Theatre: A Feasibility Study <i>UDI Perera, B Hettige, MAST Goonatilleke</i>	64
12.30 – 12.50 Hrs	A Comparative Study on Unmanned Vehicle for Human Tracking using Face Recognition System: A Review <i>LAWMMD Athapaththu, B Hettige</i>	133
12.50 – 13.10 Hrs	Implementation of a Bitcoin Mining System Using Single Board Computers (SBC): A Review <i>HMIJ Herath, MWP Maduranga, B Hettige</i>	149
13.30 – 13.35 Hrs	Summing up the Session	
13.35 – 14.00 Hrs	Lunch Break	

COMPUTER ENGINEERING

Computer Engineering and Its Applications for Sustainable Development Deep Learning & Data Engineering

CE-B

Chairperson : Prof. Sudha Buwaneshwari		
Rapporteur : Ms. RHNS Jayathissa		
Location : Suranimala Building Electronic & Simulation Lab (Class – E)		
Zoom Link: https://learn.zoom.us/j/7578402390?pwd=ZnQyTmJ5VFhJOWQ4WXdlR2huWHBwZz09		
Meeting ID: 757 840 2390 Passcode: Coe@1234		
14.00–14.20 Hrs	Comparative Study of Blind Support Devices: A Review <i>RGS Deemantha, B Hettige</i>	37
14.20–14.40 Hrs	Applications of UAV in Precision Agriculture: Applications and Challenges <i>KKVSM Kalyanapriya, MWP Maduranga</i>	136
14.40–15.00 Hrs	Hardware Accelerator for Blockchain-Based Applications in IoT Devices: A Review <i>CW Dissanayake, RHNS Jayathissa</i>	140
15.00–15.20 Hrs	Indoor Positioning Systems for UAV Localization: A Review <i>PTC Sandamini, MWP Maduranga</i>	141
15.20–15.40 Hrs	Sensor based Fully Automated Component for Fan: A Review <i>WCD Rathnasiri, B Hettige</i>	144
15.40–15.45 Hrs	Summing up the Session	
