American International University-Bangladesh (AIUB)

SDG Activity Report 2023

SDG 2: Zero Hunger

End hunger, achieve food security and improved nutrition and promote sustainable agriculture

American International University-Bangladesh (AIUB) actively supports Sustainable Development Goal 2 by addressing food security, promoting sustainable agriculture, and reducing hunger on campus and in the community. AIUB hosts workshops and seminars like “Agriculture and its Prospects for Sustainable Development in Bangladesh” and “Prospects of Local Products for MSMEs in Bangladesh”, which provide students and local farmers with insights into sustainable agricultural practices.

The university emphasizes sustainable food choices by offering healthy, affordable vegetarian and vegan options in all its food outlets. To combat hunger, AIUB provides food assistance programs such as food pantries, benefiting both students and staff experiencing food insecurity. These initiatives align with efforts to ensure access to nutritious food on campus.

AIUB also contributes to agricultural innovation through research and technology. Projects like IoT-Based Smart Poultry and Fish Farming and Potato Leaf Disease Detection Using Image Processing aim to enhance sustainable farming techniques. These technologies are shared with local farmers through free workshops and access to university facilities, promoting sustainable agriculture.

Furthermore, AIUB prioritizes purchasing locally sourced, sustainable products to support regional food producers. These actions not only reduce hunger but also foster community development, reinforcing AIUB’s commitment to SDG-2.

#AIUB #SDG2 #ZeroHunger #SustainableAgriculture

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University Activities towards SDG 2

Seminar on “A Rapid and Low-Cost Multifrequency Electrical Impedance Tomography Data Acquisition System for Precision Agriculture”

On Wednesday, September 27th, 2023, the IEEE AIUB Student Branch in collaboration with the IEEE MTT-S AIUB Student Branch Chapter, successfully organized a seminar titled “A Rapid and Low-Cost Multifrequency Electrical Impedance Tomography Data Acquisition System for Precision Agriculture”. The event was held for the students to engage with the future of precision agriculture.

The seminar was inaugurated by Prof. Dr. Mohammad Abdul Mannan, Associate Dean, Faculty of Engineering, AIUB; Advisor, IEEE AIUB Student Branch. He welcomed the attendees and introduced our honorable speaker for the session. He discussed the significance of machine learning and how the speaker could guide students in their research endeavors. Afterwards, the honorable speaker of the session, Dr. Rinku Basak, Associate Professor, Department of EEE, Faculty of Engineering, AIUB, took the floor and expressed his gratitude to IEEE AIUB Student Branch for organizing the seminar. He shared insights into the Electrical Impedance Tomography (EIT) system, emphasizing its relevance in studying plant morphology, physiology, and biochemical aspects. Afterward, he discussed Electrical Impedance Spectroscopy (EIS). The presentation also touched on the available measurement tools for plant phenotyping and explored research collaborations with universities such as Saskatchewan, Ryerson, and Calgary. Next, he shared his own research journey and explored the future possibilities of the EIT system and precision agriculture. The importance of MATLAB was highlighted, and attendees were encouraged to foster additional collaborations and tap into the resources offered by IEEE.

The session wrapped up with a closing speech expressing gratitude to IEEE AIUB SB for the invitation, followed by a Q&A session. Finally, Dr. Shameem Ahmad, Assistant Professor, Department of EEE, Faculty of Engineering, AIUB; Counselor, IEEE AIUB Student Branch delivered the closing remarks. During his address, he explored capstone project concepts associated with smart agriculture, considering cost and resource considerations. He also presented a token of appreciation to the speaker as a gesture of gratitude.

The seminar successfully achieved its objective of increasing participants' understanding of precision agriculture and its associated benefits. It effectively introduced the concept of EIT to the audience, providing comprehensive coverage of all relevant aspects. The seminar had a broader goal of improving food production efficiency while controlling costs, aligning with Sustainable Development Goal 2 (Zero Hunger).The seminar also underscored the importance of advancements in precision agriculture, aligning with Sustainable Development Goal 9 (Industry, Innovation, and Infrastructure). A total of 40+ participants attended the event. Notably, Honorable faculty member Mahamudul Hassan, Assistant Professor, Department of IPE, Faculty of Engineering, AIUB was among the distinguished participants.

https://www.aiub.edu/seminar-on-a-rapid-and-low-cost-multifrequency-electrical-impedance-tomography-data-acquisition-system-for-precision-agriculture

AIUB organized Seminar on Agriculture and its Prospects for Sustainable Development in Bangladesh

The Department of Economics within the Faculty of Arts and Social Sciences at the American International University-Bangladesh (AIUB) hosted a seminar titled "Agriculture and its prospects in Sustainable Development in Bangladesh." This event took place on Monday, August 14, 2023, in the AIUB Auditorium. The seminar was conducted as part of the esteemed "Dr. Anwarul Abedin Lecture Series," which aims to foster student engagement by facilitating interaction with experts in specific fields, thus enriching the pursuit of factual and meaningful education. The seminar was honored by the presence of Mr. Ishtiaque Abedin, Founder Member and Chairman of the Board of Trustees at the American International University-Bangladesh (AIUB), who served as the special guest for the occasion. The distinguished Keynote Speaker for the seminar was Mr. Shykh Seraj, Director and Head of News at Channel i, as well as an agricultural activist in Bangladesh.

During his keynote speech, Mr. Seraj provided insights into the evolution of the agricultural sector in Bangladesh since its independence. He emphasized the significance of agriculture in sustaining people's livelihoods, generating employment opportunities, and contributing to the nation's GDP. Mr. Seraj highlighted that the economy is driven by three key sectors: agriculture, ready-made garments (RMG), and remittances. He emphasized that the offspring of farmers play vital roles in these sectors, sending earnings back to their rural families. This financial support, often invested in farming initiatives, has not only bolstered the economy but also empowered youth, particularly women. Mr. Seraj also touched upon the emergence of agricultural tourism and addressed the challenges posed by climate change. He stressed the importance of integrating new agricultural technologies to adapt to changing conditions and facilitate sustainable development. Following Mr. Seraj's keynote speech, an interactive discussion session was held, allowing students and faculty members to engage with the guest speaker. Mr. Ishtiaque Abedin, Founder Member and Chairman of the Board of Trustees at AIUB, emphasized the necessity of modernizing agricultural practices through cutting-edge technology to address current socio-economic challenges. He underscored the importance of exploring viable pathways for sustainable development in Bangladesh. Mr. Abedin expressed his gratitude for Mr. Shykh Seraj's presence and contributions as the keynote speaker, concluding with appreciation for the enthusiastic audience. A token of appreciation, along with a crest, was presented to Mr. Seraj by the Chairman of the Board of Trustees at AIUB.

https://www.aiub.edu/aiub-organized-seminar-on-agriculture-and-its-prospects-for-sustainable-development-in-bangladesh

Empowering Agribusiness with Blockchain Technologies

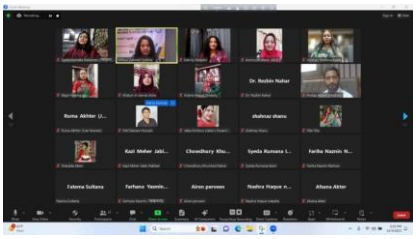
The Department of Management Information Systems hosted a seminar titled " Empowering Agribusiness with Blockchain Technologies" at the Multipurpose Hall, D-Building on the AIUB campus on July 30 at 10:30 a.m. Mr. Sayed Zubaer Hasan, founder and chief executive officer of "Krishi Shwapno," was the keynote speaker at the seminar. He discussed the transformative potential of blockchain in agribusiness and how it can have a positive effect on the entire agricultural value chain. As the chief executive officer of "Krishi Shwapno," he provided concrete examples of how blockchain is reshaping the cultivation, distribution, and consumption of agricultural products. He emphasized the capacity of blockchain to increase transparency and trust in the agribusiness industry as one of the most important aspects. He explained how Agro-businesses can ensure that every step of the supply chain, from farm to table, is recorded and verifiable by implementing decentralized ledger technology. This level of transparency not only inspires consumer confidence, but also enables stakeholders to make decisions based on data for improved efficiency and sustainability. In addition, he discussed how blockchain can be used to address persistent issues in agribusiness, such as food traceability, supply chain inefficiencies, and equitable pricing for producers. The audience participated enthusiastically, and he engaged in thought-provoking discussions about the practical implementation of blockchain solutions in the agricultural context of Bangladesh. In addition, the seminar offered a unique platform for networking and industry-academic collaboration. Students who were interested in pursuing a vocation as a blockchain specialist learned how to acquire the necessary skills through a lively Q&A. This seminar has assisted the academic community in adopting innovation, collaboration, and sustainability in order to advance the transformation of agribusiness and work towards a more resilient and prosperous agricultural sector in Bangladesh. The seminar was attended by FBA faculty members Ms.Nazia Farhana, Shahnaz Zarin Haque, Sanjida Akhtar, and Mohammad Baijed. Mehzabul Hoque Nahid, department head of MIS, delivered the vote of thanks. Administrative stuffs of AIUB, extended their immaculate support for making the event a success.

https://www.aiub.edu/empowering-agribusiness-with-blockchain-technologies

Workshop on “Prospects of the local products for Micro, Small & Medium Enterprises in Bangladesh”

A two-day workshop titled, “Prospects of the local products for Micro, Small & Medium Enterprises in Bangladesh” organized by the Department of Management Information Systems (MIS) and Department of Management & HRM, FBA, in collaboration with E-Commerce Development Centre. The event incorporated six sessions and took place on December 3 – 4, 2023 via MS Teams platform. The workshop adheres with the goal of SDG achievement of AIUB as the event represents “Decent Work and Economic Growth for everyone” (SDG-8), “Eliminating Poverty” (SDG-1) and “Quality Education” (SDG-4). As resource person, Mr. Razib Ahmed, Advisor, E-Commerce Development Centre (EDC), & Founding President, E-Commerce Association of Bangladesh, and Ms. Niger Fatema, Vice President, E-Commerce Development Centre and Owner, Aria’s Collection, were invited to the program to share their valuable thoughts and guidance among the students of BBA program. As special guest, Mr. Razib Ahmed, and Ms. Kakoly Talokder introduced AIUB students with e-commerce sector of Bangladesh. Niger Fatema was the designer of the Local Products Syllabus of Bangladesh as well as the main organizer of the event on behalf of the EDC. The main purpose of the workshop was to introduce the students with the local product of Bangladesh and the ways they can conduct business for their better career. The workshop helped the students to understand the opportunities and challenges of the e-commerce sector of Bangladesh. Throughout the workshop several topics related to Weaving factory/Textile Industries, Fisheries and animal resource, Handmade local jewelry, Agriculture Food Crops, Agriculture Cash Crops, Food/Homemade Food were discussed. Students experienced the journeys of the entrepreneurs, as well as their success story throughout the program. Dr. Rezbin Nahar, Director, Undergraduate Program, Faculty of Business Administration, AIUB, delivered a vote of thanks to the resource persons and the participants. She outlined the importance of such workshops for our students to make better decisions towards their entrepreneurship journeys. In his closing remarks, Mr. Mehzabul Hoque Nahid, Head, Department of MIS, applauded the digitization efforts of micro, small, and medium-sized enterprises, who are engaged in developing locally procured products. In addition, he praised the ‘E-Commerce Development Centre’ for their dedication to provide educational materials for those involved in promoting Quality Education (SDG 4) that will assist aspiring small and micro entrepreneurs, with limited resources and confined opportunities. He also expressed appreciation to Ms. Kakoly Talokder, President, E-Commerce Development Centre, and all the organizers for their invaluable counsel for this outstanding initiative. A number of students form BBA Program of American International University Bangladesh (AIUB) were the participants of this workshop. Throughout the whole workshop the trainers; Ummay Shahera Anika, Sirajum Munira, Syeda Kamalia Rahaman, Arjena Hoque Shabaty, Palash Chandra Shil had taken session on e-commerce and local products of Bangladesh. Md. Daloare Hossain maintained the technical part and Miftaul Zannati Cynthia hosted the program from EDC. Around 50 entrepreneurs shared their journey briefly with the participants. The entire event was coordinated and moderated by Ms. Azmery Sultana, Lecturer, Department of MIS. Dr. Md. Aftab Anwar, Head, Department of Management & HRM, FBA, along with other faculty members, Ms. Nazia Farhana, Mr. Jubayer Suhan, Ms. Tamanna Nazneen Rahman, and Dr. Mohammad Sirajul Islam attended the event. The immense support from AIUB management and Administration made the event a success.

https://www.aiub.edu/workshop-on-prospects-of-the-local-products-for-micro-small--medium-enterprises-in-bangladesh



Faculty Research and Publications on SDG 2

The Fourth Industrial Revolution and Beyond

NOWSHIN ALAM et el.

Focuses on the research trends, challenges, and future of artificial intelligence. Serves as a reference book for the practitioners and researchers of AI, soft computing, IoT, and data analytics. Addresses the challenges of data science for industrial applications in developing and under-developed countries.

https://link.springer.com/book/10.1007/978-981-19-8032-9

SmartPoultry: Early Detection of Poultry Disease from Smartphone Captured Fecal Image

UMME SADIA SALSABIL et el.

The outbreak of chicken disease has been a major concern around the world, as the poultry industry supplies a significant portion of the global protein needs. Such an outbreak can cause enormous financial loss to the poultry farmers and induce food insecurity. The COVID-19 lessons have taught us that chicken disease outbreak can be a threat to human lives as well if not detection in time. Currently, poultry farmers rely on their experience to detect diseases to seek professional's help, which occasionally fails, resulting in widespread chicken death. Thus, early detection of chicken disease is of great importance for sustainable poultry farming, reducing poultry losses and preventing the spread of zoonotic diseases to humans. Several methods proposed previously for this purpose but failed to achieve sufficient accuracy and practical usability. In this paper, we propose an AI-assisted automated system for detecting chicken diseases at an early stage from smartphone captured fecal images. The proposed method utilized an ensemble network of four fine-tuned convolutional neural networks that

were selected through an exhaustive search. The proposed method outperformed existing methods, achieving 99.99% accuracy and we demonstrated its practical usability in terms of time, robustness, user friendliness and cost.

https://ieeexplore.ieee.org/xpl/conhome/10201904/proceeding

IoT-Based Smart Poultry and Fish Farming System Using Arduino

DR. MUHIBUL HAQUE BHUYAN et el.

This research work aims to reform the conventional farming system, making it smart and automated with the use of Internet of Things (IoT) technology. The work targeted to automate the poultry and fish farming system. As such, the system uses an Arduino Uno microcontroller as a digital controller integrated with an IoT to aid farmers in remote monitoring and controlling the farming system. The farming system consists of a poultry farm at the top and a fishing farm at the bottom of a vertical farming system. The system mainly monitors the critical parameters of the farming environment, such as pH value, temperature, humidity, dissolved oxygen levels, etc. through some sensors. Then it takes appropriate actions based on the sensed parameter values through some actuators, such as servomotor. DC motor, pump, fan, etc. to regulate the farming environment's variables to the values within the acceptable ranges automatically. This would reduce the time and effort to be spent on farming significantly. Testing and evaluation of the system through Proteus software simulation and hardware implementation show that the target has been achieved.

https://icbbdb.com/workshop-on-icbbdb-wicbbdb-2023/

Potato Leaf Disease Detection Using Image Processing

TANVIR AHMED et el.

The economics of a nation is significantly influenced by agricultural productivity. Finding plant leaf disease is crucial since it significantly reduces agricultural productivity. Traditional detection methods like observing with the naked eye can lead to time-consuming and less accurate results. Farmers can't always tell the difference between leaf diseases because sometimes they look the same. That's why researchers have started using automation techniques to accurately detect the main diseases and their symptoms. This research proposed potato leaf disease detection using an image processing technique where the dataset was obtained online. In the proposed method, several image pre processing techniques are used including data augmentation, gaussian smoothing, image normalization, dimensionality reduction and one hot encoding. CNN, KNN and SVC were used as classifiers. CNN gives the best result with an overall accuracy of 97%. Previous works with different classifiers had several limitations and using CNN the researchers didn't get satisfying result. For this research a new hybrid model is introduced which can utilize the best of CNN classifier and it will be much more reliable and effective.

https://www.mecs-press.org/ijeme/ijeme-v13-n4/IJEME-V13-N4-2.pdf