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Institute of Computing, Engineering and Technology

BOOK OF ABSTRACTS

A.Y. 2020-2021

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Institute of Computing Engineering and Technology

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The Book of Abstracts A.Y. 2020-2021 Institute of Computing Engineering and Technology is an annual publication of Davao del Sur State College that showcases a selection of research studies conducted by students. This publication offers valuable insights into the wealth of knowledge and innovative ideas emerging from the academic work of both students and their mentors.

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MESSAGE FROM THE OFFICE OF THE PRESIDENT

The Davao del Sur State College (DSSC) is committed to delivering quality education and fostering impactful research that contributes to community development and improves quality of life. Our research initiatives create opportunities for growth, innovation, and progress.

I congratulate our students for their impactful research and our faculty members for their dedication to mentoring students to become future researchers of integrity and excellence. I also extend my gratitude to Dr. Cherry Ann P. Roxas, RDI Director, and Asst. Prof. Jayson R. Pucot, Head of the Research Publication Office, for their hard work in compiling and documenting our graduate students' thesis abstracts. May this Book of Abstracts inspire future researchers for years to come.

Congratulations to all involved in this achievement!

AUGIE E. FUENTES, Ph.D.
President

MESSAGE FROM THE OFFICE OF THE DIRECTOR FOR RESEARCH, DEVELOPMENT AND INNOVATION

Research is a cornerstone of academic excellence, driving students to engage with global challenges and contribute to the creation of new knowledge. It is with great pleasure that I present the Book of Abstracts, highlighting the outstanding theses of students from the Institute of Computing, Engineering, and Technology.

I would like to express my sincere appreciation to our dedicated faculty and Dean Prof. Eduardo F. Aquino for his leadership and support in guiding our students. To the graduates, congratulations on your achievements! May this research experience inspire you to continue exploring, learning, and contributing to the world of knowledge.

CHERRY ANN P. ROXAS, DBA
RDI Director

MESSAGE FROM THE DEAN

Welcome to the Book of Abstracts of the Institute of Computing, Engineering and Technology. This compilation highlights the innovative and transformative research conducted by our talented faculty and students. It is a testament to the relentless pursuit of knowledge, the spirit of collaboration, and the commitment to addressing the challenges of tomorrow.

I extend my appreciation to the institute research coordinator, Engr. Loradel M. Llenado, for her diligent work on assisting in the compilation of the students' theses abstracts. I also extend my heartfelt congratulations to all researchers, and I hope this work inspires further exploration and discovery in the ever-evolving field of computing, engineering and technology.

PROF. EDUARDO F. AQUINO
Dean, ICET

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Bachelor of Science in Information Technology

CLASSIFICATION SYSTEM OF TRICHODERMA CULTURE GROWN IN COCO-WATER BASED ON RGB USING TENSOFLOW PROTOTYPE

Author: Bryan B. Gacayan Year:2021
Adviser: Felomino P. Alba, IT.D.

Classification system of Trichoderma Culture grown in coco-water based on RGB using TensorFlow with Prototype is a desktop application system that can classify the liquid Trichoderma whether good or contaminated and if it was ready for harvest. This desktop application system would develop to follow the standard of Quality Control of Trichoderma laboratory and to automate the manual process of the classification in time for harvest. From the series of testing of Classification system of Trichoderma Culture grown in coco-water based on RGB using TensorFlow with Prototype proponent conclude that in creating the desktop application system it must be tested first to know if it was working well or not. In that way, when in final implementation there will be fewer problems on it. As of now, the desktop application system was functioning. Finding revealed that the desktop application system was working and may help the quality control of Trichoderma laboratory (f) functionality has the consolidated mean of 4.18 which mark as Very Agree and this indicates in with the interpretation in Likert scale of that the certain functionality are stable. As for (g) reliability has the consolidated mean of 3.69 which mark as Very Agree and this indicates once only (encountered errors). However, it is recommended that the camera must be high graphically definition to clearly captured the image of liquid Trichoderma to have more accuracy. Develop an android mobile application version in this desktop application system to lease more equipment and to lease expenses. Improve the movements of the camera, that would move forward backward, left, right and circular to have more accuracy. The desktop application system must have a data base to store the data of the contaminated and good liquid Trichoderma.

INTERNET PROFILING IN MABAMA WITH DECISION SUPPORT USING GEOGRAPHIC INFORMATION SYSTEM

Author: Nikki C. Montecillo Year:2021
Adviser: Domingo V. Origines, IT. D

This capstone project was conceptualized to develop applicable system that could track data of interest to users in the future. It was focused on internet profiling of schools with Grades 7 to 12 in the municipalities of Matanao, Bansalan and Magsaysay (MABAMA). The field testing and actual data gathering was implemented in May 2021. The study was conducted with the general aim to serve as basis for decision making among stakeholders of these educational institutions in the study area, specifically serve as a basis for decision-making among school administrators, teachers, and heads of local government units in crafting policies and strategic actions to address the problems related to blended learning approach in delivering the services of schools in the light of the new normal. The software used in this project were google map and SQL administrator for the database. Mobile apps were also used like the GPS to determine the coordinates of the school, speed test to know the internet connection of the school; and to identify the network service provider in the areas where the schools covered in the study were located.

The result of the field study using the system developed for this capstone project revealed the significant information's in Table 3. The data shows the detailed information of the 22 schools covered in the study particularly on internet speed which ranged from 1.49 – 30 mbps and service provider was observed to be dominated by PLDT and SMART which represents 68% of the 22 schools in the study area and also having the highest internet speed while the rest provided by GLOBE (32%) with internet speed generally low compared to its counterpart. This information generated in the study sends a good feedback for stakeholders in these schools operating in the area as future basis for coming up with strategic actions to strengthen the capacity of these schools in responding the challenges of making learning continue in the new normal due the impact of the pandemic where needed modalities of academic deliveries call for the use of internet as a new platform of discussion to replace the chalk and board model of the past. However, the need to improve the present status of these schools in terms of internet speed ideal for interactive learning in the digital space are decision support output of the study conducted. Hence, replicating this initiative in wider number of schools

a good opportunity to contribute the mandate of the DepEd on mapping of schools as desired in its manual in 2010.

ETRACEMO: A SECURED COVID-19 CONTACT TRACING MODILE APPLICATION USING GEOLOCATION TECHINIQUE

Author: Janice B. Olanda Year:2021
Adviser: Rhea Mae L. Perito, MSIS

The purpose of this study is to design and develop eTraceMo: A Secured Covid19 Contact Tracing Mobile Application using Geolocation technique to trace Covid-19 cases using geolocation. The application captures the location coordinates of the user; it visualizes the location of the user using Google Maps, it generates periodical list of establishments where user's entry has been recorded, provides Multifactor Authentication using One-Time-Password (OTP) for user log in and provides an option for the user to delete recorded data for data privacy of the users. The development of the application and technology used a laptop and Android phone. The software used android studio as integrated development environment (IDE) for developing Android Application and uses java programming language with Java Runtime Environment (JRE) version 8. The researcher also uses MYSQL Administration as operations managing databases. Further, Google Maps API embed their application. It implements device place detection auto- complete and add information about millions of locations to your app. The application development was carried out through Rapid Application Development model. A Series of testing of eTraceMo: A Secured Covid 19 Contact Tracing Mobile Application using Geolocation Technique were employed. The objectives of the study were met and recommendations have been laid down. Thus, it is recommended that the application should capture coordinates, the background process error on getting the coordinates is above 5 meters GPS and must be automatically turned on upon successful log in. On the other hand, establishments with no name displayed must capture the location coordinates and be modified to display useful information; use android phones with high GPS capability to attain minimal error on fetching coordinates.

TRICHODERMA CLASSIFICATION SYSTEM BASED ON COLOR CODE TEXTURE OF POTATO DEXTROSE AGAR SOLID (PDA) USING TENSORFLOW WITH PROTOTYPE

Author: Randy G. Ramirez Year:2021
Adviser: Felomino P. Alba, IT.D.

The Trichoderma Classification system based on color code texture of potato dextrose agar solid (PDA) using TensorFlow with Prototype is a desktop application system that can classify the solid Trichoderma whether good or contaminated and determine the healthy ready to harvest. This desktop application system would develop to follow the standard of Quality Control of the Trichoderma laboratory and to automate the manual process of the classification in time for harvest. From the series of testing of Trichoderma Classification system based on color code texture of potato dextrose agar solid (PDA) using TensorFlow with Prototype, the proponent concludes that in creating the desktop application system it must be tested first to know if it was working well or not. As a result, when it comes to final implementation, there will be fewer issues. As of now, the desktop application system was functioning.

The desktop application system was found to be functional, which could aid in the quality control of Trichoderma laboratories, and functionality has the consolidated mean of 3.91 which mark as Very Agree means the respondent accepted and believed that all the functions displayed were not so fully acquired and goals were achieved, but there are technicalities such as bugs, errors, unexpected outputs found and this indicates in with the interpretation in Likert scale that the certain functionality is stable. As for reliability has the consolidated mean of 3.69 which mark as Very Agree means the respondent accepted and believed that all the functions displayed were fulfilled and goals were achieved but the system and prototype consistency existed. The stability was not so fully measured by fully. And this indicates once only (encountered errors). However, to record the image of solid Trichoderma with greater accuracy, the camera should have a high graphically definition. Develop an Android mobile app for this desktop application system to lease more equipment and reduce leasing costs. Improve the accuracy of the camera's movements, which would go forward-backward, left-right, and circularly. The polluted and good solid Trichoderma data must be stored in the desktop application system's database.

ETRACEMO: A SECURED COVID-19 CASE CONTACT TRACER USNG QR CODE WITH DATA ANALYTICS

Author: Genevieve C. Sumabat Year:2021
Adviser: Rhea Mae L. Perito, MSIS

The eTraceMo: a Secured COVID-19 Case Contact Tracer using QR Code with Data Analytics is to design and develop a mobile application that is utilized by the establishments used to capture citizens' QR codes, as well as a web service that will monitor statistical data on citizens' entry into the establishment. The mobile application has the following functionalities: it displays the total number of persons enter in the establishment a day, and it displays the total number of persons enter in the establishment a day for different age brackets. Moreover, a web service that has the following features: It generates a periodical list of individuals enter in the establishment; It generates graphs presenting the following: Total number of persons enter the establishment a day; Total number of persons enter the establishment a day for different age brackets; Total number of persons enter in the establishment a day for different sex; Total number of persons enter in establishment a day from each barangay, and provide multifactor ii authentication using one-time password OTP of user login in data deletion Implement data deletion function for administrators. The researcher used Android Studio to build Android apps, a web browser to access and view web services, and MySQL to create, modify, and extract data from a relational database, as well as control user access. The study has been found successful as to its objectives, yet recommendations have been laid down. It has been recommended that the graphs must be locally hosted so that graphs will be loaded even without internet connectivity; The mobile application app must scan even if no internet connection; The GUI of mobile application and web service must be improved; The placement of the graph must be improved. Improved the generated reports of the system; The entirety of the system needs huge improvement.

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