Bangkit 2024

Capstone Theme's for Product Capstone

1. **Health Innovation: Empowering Vulnerable Communities for Health and Well-being**

   Subtopics: *Telehealth Solutions for Underserved Areas, Digital health platform, Healthcare monitoring, Patient-centric mobile applications, Resilient supply chain management in healthcare, Early warning systems for healthcare, Tracking disease trends, Improve the efficiency of public health interventions during emergencies. Accessible Wellness Apps for Persons with Disabilities, Empowering Women's Health, Elderly Care and Social Connection Apps, Smart Health Assistants for Home Care, Family and Child Well-being Dashboard, etc.*

   In the context of Indonesia, the theme "Empowering Vulnerable Communities for Health and Well-being" takes on profound significance. Indonesia, with its diverse cultural tapestry and geographic challenges, often sees vulnerable communities facing obstacles in accessing essential healthcare services. The project theme aims to harness technology, including Machine Learning, AI, Cloud Computing, and Mobile Development, to bridge these gaps and uplift the health and well-being of those most in need. From remote areas with limited healthcare infrastructure to urban centers grappling with socio-economic disparities, the focus is on creating innovative solutions that address the unique health challenges faced by various vulnerable groups across the archipelago.

   This theme recognizes the imperative role of technology in addressing healthcare disparities and building resilience in the face of health crises. The "Health Innovation" theme is an invitation for students to harness their technical prowess to develop impactful solutions, ranging from telemedicine applications to predictive analytics for disease prevention. Through this theme, students will actively engage with real-world healthcare challenges, gaining insights into the complexities of the healthcare landscape in various regions. The aim is to

empower students to become catalysts for positive change, influencing the trajectory of healthcare innovation and resilience for a healthier tomorrow.

References:

- 5G and AI-Driven Process Control: Digital Transformation Boosting Agility and Effectiveness in Supply Chains, Manufacturing Systems & Telehealth Delivery
- A Review on Innovation in Healthcare Sector (Telehealth) through Artificial Intelligence
- A telehealth inpatient addiction consult service is both feasible and effective in reducing readmission rates
- Front-end deep learning web apps development and deployment: a review
- A Chilean survey of perinatal women and health care professionals' views towards perinatal apps
- Exploring benefits and ethical challenges in the rise of mHealth (mobile healthcare) technology for the common good: An analysis of mobile applications for health specialists
- A Systematic Review of Mobile Apps as an Adjunct to Psychological Interventions for Emotion Dysregulation
- Lessons from digital technology-enabled health interventions implemented during the coronavirus pandemic to improve maternal and birth outcomes: a global scoping review
- Digital Health Technology to Support Health Care Professionals and Family Caregivers Caring for Patients With Cognitive Impairment: Scoping Review

2. **Economics Empowerment: Navigating Sustainable Economies for All**

Subtopics: *Inclusive entrepreneurship ecosystem, Financial inclusion solutions, Resilient supply chains, Circular economy initiative, Innovative Fintech, Expense Prediction and Optimization, Investment Portfolio Optimization, Automated Savings Planning, Mobile App for Seamless Financial Management, Personalized*

Financial, AI-Driven Personal Financial Advisor, E-Commerce Optimization Platform, Predictive Inventory Management, Eco-Friendly E-Commerce, Secure Multi-Party Payment Systems, Data-Driven Business Intelligence for E-Commerce, SME's Optimization, etc.

The "Economic Empowerment: Navigating Sustainable Economies for All" Capstone Project delves into the intersection of technology and economics to foster inclusive and sustainable growth. This theme centers on leveraging innovative solutions to address economic disparities and empower communities across diverse socio-economic backgrounds. In the context of Indonesia's dynamic economy, the project aims to develop impactful tools and strategies that facilitate access to financial resources, education, and entrepreneurship. Through the application of technologies such as machine learning, data analytics, and mobile platforms, students will embark on a journey to create solutions that contribute to building resilient and sustainable economic ecosystems.

This theme invites students to explore various aspects of economic empowerment, including financial literacy, skill development, E-Commerce, and access to markets. The goal is to devise comprehensive solutions that cater to the unique challenges faced by different segments of society. Whether it's creating platforms for micro-entrepreneurs, developing financial planning tools, or enhancing access to educational resources, the Economic Empowerment theme seeks to navigate sustainable economies that uplift individuals and communities. By addressing economic inclusivity and resilience, students engaging in this theme will contribute to the creation of a more equitable and empowered society, aligning with the broader goal of fostering sustainable economic development for all.

- Global Incidences of Inclusive Entrepreneurial Ecosystem: Conceptualization and Measurement Framework
- SUPPORTING THE INCLUSIVE GROWTH OF ECOSYSTEMS IN THE CONTEXT OF THE DIGITAL TRANSFORMATION

- Technological Innovation and the expansion of Entrepreneurship Ecosystems
- The Impact of Industry 4.0 Technologies on Key Performance Indicators for a Resilient Supply Chain 4.0
- Influences of artificial intelligence and blockchain technology on financial resilience of supply chains
- Exploring How Digital Technologies Enable a Circular Economy of Products
- Pioneering Perception of Green Fintech in Promoting Sustainable Digital Services Application within Smart Cities
- Mobile money as a driver of digital financial inclusion

3. **Empowering Minds: A holistic approach to education and personal development**

   Subtopics: *Personalized learning ecosystem, Mental wellness for students, Career exploration and skill development, Gamification for educational engagement, Digital literacy, Inclusive education for diverse learners, Smart Classroom Management, Remote Learning Enhancement, Language Learning Platform, Parent-Teacher Collaboration Platform, Digital Library and Resource Management, etc.*

   In the pursuit of advancing educational standards, this Capstone theme aims to leverage cutting-edge technologies to uplift the quality of education in Indonesia. Recognizing the diverse challenges faced by the Indonesian education system, this theme encourages students to explore innovative solutions by integrating technologies such as Machine Learning, Artificial Intelligence, Cloud Computing, and Mobile Development. The focus is on fostering holistic development, including cognitive, emotional, and interpersonal skills, to empower individuals for a well-rounded and successful future. This theme encourages students to explore new frontiers in education, focusing not only on academic achievement but also on nurturing the skills and mindset needed for personal growth and success in various aspects of life.

The goal of this capstone project is to develop a holistic approach to education and personal development that will empower students to be successful in life. The approach should be innovative and scalable, and it should have the potential to make a significant impact on the lives of students. This capstone project is an opportunity for students to make a real difference in the world. By developing a holistic approach to education and personal development, students can help empower people to reach their full potential and contribute to a better society.

References:

- An Ambient and Pervasive Personalized Learning Ecosystem: "Smart Learning" in the Age of the Internet of Things
- Modernizing Learning: Building the future learning ecosystem
- Mental Wellness of Students Affected by Online Learning
- School Mental Health Is Not Just for Students: Why Teacher and School Staff Wellness Matters
- In Global Crisis Career Exploration & Skill Development
- Career Exploration: A Review and Future Research Agenda
- Furthering Proactivity and Career Adaptability Among University Students: Test of Intervention
- Exploring the impact of gamification on student engagement and involvement with e-learning systems
- The impact of gamification on students learning engagement
- Promoting inclusive education for diverse societies: A conceptual framework
- FEELING HEARD: INCLUSIVE EDUCATION, TRANSFORMATIVE LEARNING, AND PRODUCTIVE STRUGGLE

4. **Digital Experiences: Revolutionizing Sustainable Tourism**

Subtopics: *Smart destination management, Cultural heritage preservation, Eco-friendly adventure tourism, Smart Tourism Infrastructure, Real-Time Language Translation for Tourists, Virtual Tour Guides, Crisis Management for Tourism, etc.*

In this capstone project theme, students can explore innovative ways to leverage digital technologies in the realm of sustainable tourism. The focus will be on creating digital experiences that not only enhance the overall tourist experience but also contribute to the conservation and sustainable management of tourist destinations.

The theme encourages projects that not only promote sustainability but also foster a deeper connection between travelers and the destinations they visit. Revolutionizing Sustainable Tourism involves the exploration of creative solutions that balance economic interests with environmental and social responsibility. Additionally, the theme encourages projects that empower tourists to make responsible choices through user-friendly interfaces, real-time information, and immersive experiences that highlight the significance of sustainable practices. These projects should not only address current challenges but also pave the way for a future where tourism becomes a force for positive change, supporting the preservation of natural and cultural heritage while fostering socio-economic development in host communities.

References:

- Smart governance for heritage tourism destinations: Contextual factors and destination management organization perspectives
- A meta-narrative analysis of smart tourism destinations: implications for tourism destination management
- Is smart tourism technology important in predicting visiting tourism destinations? Lessons from West Java, Indonesia
- Predicting Tourists' Behaviour Towards Smart Tourism: The Case in Emerging Smart Destinations
- 3D technologies for intangible cultural heritage preservation—literature review for selected databases
- Sustainable Rural Tourism Management: Upgrading eco-friendly and self-sustainable hotels in Costa Rica
- Ecotourism is the future of alternative tourism for environmental sustainability and natural areas protection

- A thematic analysis of crisis management in tourism: A theoretical perspective
- From Culture to Smart Culture. How Digital Transformations Enhance Citizens' Well-Being Through Better Cultural Accessibility and Inclusion

5. **Fusion Unleashed: Art, Entertainment, and Media Transformation**

   Subtopics: *Personalized Content Recommendation Systems, AI-Driven Creative Content Generation, Interactive Multimedia Installations, Enhanced Gaming Experiences, Digital Storytelling Platforms, Cultural Preservation Through Technology, Music Composition with AI, Media Editing Suite, Podcast Recommendation System, etc.*

   In the dynamic landscape of technology-driven advancements, the "Entertainment and Media Transformation" theme for the Capstone Project invites students to spearhead innovation at the crossroads of creativity and technology. This theme explores the profound impact of cutting-edge technologies, including Artificial Intelligence (AI), Machine Learning (ML), Cloud Computing, and Mobile Development, on revolutionizing how society consumes and interacts with entertainment and media content. It challenges students to conceive groundbreaking projects that reimagine traditional paradigms, fostering a deep understanding of the evolving needs and expectations of modern audiences.

   In this immersive exploration, students will have the opportunity to conceive projects ranging from AI-enhanced content recommendation systems and collaborative cloud-based media editing suites. The theme encourages students to delve into areas such as predictive audience engagement using ML, digital rights management, and the integration of VR for virtual events. The "Entertainment and Media Transformation" theme not only showcases the potential of technology to reshape the entertainment industry but also underscores the pivotal role of innovation in shaping the future of media consumption. Through this theme, students will embark on a journey to create

solutions that redefine the boundaries of entertainment, setting the stage for the next era in media evolution.

References:

- Semantic Communications for Artificial Intelligence Generated Content (AIGC) Toward Effective Content Creation
- Artificial intelligence in the creative industries: a review
- Harnessing the Potential of Storytelling and Mobile Technology in Intangible Cultural Heritage: A Case Study in Early Childhood Education in Sustainability
- The Interactive Creativity of the Digital Era: Exploring How Media Art Redefines the Relationship Between Audience and Artwork
- Exploring the Role of Folk Media in Changing the Social Behavior of Urban People: An Exploratory Study in Lahore
- Live and digital engagement with the visual arts
- Digital Museum Transformation Strategy Against the Covid-19 Pandemic Crisis

6. **Smart Agri-Fishery Solution: Agrotech and Fisheries Technology Integration**

Subtopics: *Smart Crop Monitoring System, Aquaculture Optimization through Data Analytics, Automated Hydroponics System, Smart Agri-Fishery Marketplace, Automated Pest Control in Aquaponics, Real-time Crop Disease Diagnosis, Traceability for Fisheries, Marine Conservation Monitoring App, Smart Fisheries Management System, Ocean Pollution Tracking and Reporting App, Marine Education and Awareness App, Smart Ports and Navigation Assistance, Smart Marine Solutions, Green Economy/Finance, Blue Economy/Finance, etc.*

As Indonesia strives to meet the rising demand for seafood amid environmental challenges, the integration of Agrotech and Fisheries Technology emerges as a transformative solution. This Capstone Project theme envisions a comprehensive technology-driven approach to revolutionize aquaculture practices, fostering sustainability, efficiency, and economic growth. In the heart

of this theme lies the ambition to create a harmonious synergy between Agriculture Technology (Agrotech) and Fisheries. Indonesia, endowed with rich marine resources, faces the dual challenge of ensuring food security and preserving its aquatic ecosystems. The project aims to address this by leveraging advanced technologies tailored to the Indonesian context.

Furthermore, the project seeks to empower local fish farmers by introducing a user-friendly mobile application. This application will provide farmers with actionable insights, market connections, and vital information on sustainable practices. The integration of blockchain technology ensures transparency in the seafood supply chain, instilling confidence in consumers about the origin and quality of the products. Through this Capstone Project, students will contribute to the advancement of Indonesia's aquaculture sector by developing innovative solutions that align with the nation's unique challenges and opportunities. The goal is to create a model that can be scaled and adapted to various regions, promoting the sustainable growth of aquaculture in Indonesia.

References:

- Smart Farming System using IoT for Efficient Crop Growth
- Smart Crop Prediction using IoT and Machine Learning
- Applications of data mining and machine learning framework in aquaculture and fisheries: A review
- Deep Learning in Aquaculture: A Review
- Deep diagnosis: A real-time apple leaf disease detection system based on deep learning
- Artificial Intelligence-Based Robust Hybrid Algorithm Design and Implementation for Real-Time Detection of Plant Diseases in Agricultural Environments
- Smart Fishery: A Systematic Review and Research Agenda for Sustainable Fisheries in the Age of AI
- Smart Monitoring System for Pond Management and Automation in Aquaculture

7. **Sustainable Futures: Nurturing harmony between humanity and the environment**

Subtopics: *Smart urban ecology, Biodiversity conservation through technology, Climate resilient agriculture, Community-led environmental awareness, renewable energy integration, Digital innovation for waste reduction, smart water management system, Green infrastructure for resilient cities, Urban Green Spaces Optimization, Air Quality Monitoring and Improvement, Smart Water Usage System, Renewable Energy Integration, Urban Wildlife Conservation, Community Environmental Education, Climate Resilience Planning, etc.*

As a nation boasting the world's second-highest level of biodiversity, Indonesia faces pressing environmental challenges that demand innovative solutions. These global challenges are particularly acute in Indonesia, where deforestation, climate change, and resource depletion threaten its rich ecosystems and unique wildlife. To secure a sustainable future, we must actively seek ways to live in harmony with the environment, exploring innovative solutions like community-based conservation efforts and ecosystem restoration initiatives.

This capstone theme invites students to embark on a transformative journey toward envisioning and implementing sustainable solutions that foster a harmonious coexistence between humanity and the environment. Participants will delve into the multifaceted challenges of our rapidly changing world, exploring innovative approaches that contribute to the creation of sustainable futures. By nurturing a sense of responsibility and stewardship, students will have the opportunity to propose forward-thinking initiatives that not only mitigate environmental impact but also enhance the overall well-being of communities.

References:

- Organizing a sustainable smart urban ecosystem: Perspectives and insights from a bibliometric analysis and literature review

- The concept of smart cities: a sustainability aspect for future urban development based on different cities
- Ecological Smart City Construction Based on Ecological Economy and Network Governance
- Emerging Technologies to Conserve Biodiversity
- Biodiversity conservation and conservation biotechnology tools
- Socio Economic Impact of Climate Resilient Technologies
- Role of Biotechnology in Climate Resilient Agriculture
- Digitally enabled affordances for community- driven environmental movement in rural Malaysia
- Rethinking the sustainable development goals: Learning with and from community-led initiatives
- Renewable energy integration with electric vehicle technology: A review of the existing smart charging approaches
- An IoT and Blockchain-based approach for the smart water management system in agriculture
- Development of a Digital Twin for smart farming: Irrigation management system for water saving
- AI-Enabled Water Management Systems: An Analysis of System Components and Interdependencies for Water Conservation