RISTEK-1

Pilot Scale Design and Testing of Spray Distillation Process

Irvan Setiadi Kartawiria, Diah Indriani Widiputri

ABSTRACT

Industrial bioethanol production is an energy intensive process, where more than 60% of the energy is required in downstream processing, mainly for distillation and purification. Spray distillation process was developed by the authors to provide downstream processing alternatives with less energy consumption. Spray distillation is a separation process based on diffusion where the mixture of ethanol-water is dispersed as atomized droplets in a slightly heated column at 40C with counter-current flow. Mathematical model and laboratory scale simulation has shown potential for further development, with theoretical yield of 40-80% yield using feed concentration of 12-70% v/v. The objective of this applied research is to prepare pilot scale spray distillation unit processes that are operable in relevant industrial environments. First year research has resulted in the design and construction of a pilot scale prototype, and the main output from the second year project is to test the pilot scale and increase the flow rate.

The prototype has been equipped with an automatic control system to improve the reliability of feed flow and column temperature. The test and optimization that has been conducted in the spray distillation unit shows that the flow rate could be increased from 2.5-3 liter/ hour to 5-7 liter/ hour. However the yield needed to be optimized since it was only achieved 20-30% (29.40% in 30% feed), lower than the first model of 40%. The ethanol concentration in the product also needs optimization by adding a product recovery system. Currently the maximum ethanol concentration in the product line is 62.8% v/v from 50% ethanol feed concentration.

Keywords: Distillation, Spray Distillation, Bioethanol, Design

SGU SYMPOSIUM 2022

RISTEK-2

Metabolites Profiling of Mangrove Extracts as a Model for Developing the Indonesian Natural Products Library Database for Drug Discovery

Kholis Abdurachim Audah, Irmanida Batubara, Rudi Heryanto

ABSTRACT

Metabolites profile is very important as the basis for determining bioactive constituents of natural products. Despite the abundant of natural products sources, Indonesia as a country still does not have natural products database that can be utilized particularly for drug discovery purpose. The aim of this study is to develop a database of the Indonesian Natural Products Library (INPL) generated from Indonesian biodiversity that have medicinal potentials.

In this study, mangroves plants are used as a model to develop such database due to their availability throughout Indonesian coastline and their traditional uses as medicines as well as food sources. Several species of mangroves with different parts of the plants, either leaf, fruit, bark, stem or root have been extracted using different solvents and tested against several bacterial strains as well as cancer cell lines.

The results showed that mangrove extracts contain a wide variety of chemical constituents and have a good potential either as antibacterial or anticancer drugs. Published data generated which include but not limited to species identification, method development, phytochemical constituents, metabolites and bioactivity are input into the database platform.

Keywords: Drug Discovery, INPL, Metabolites, Mangroves, Indonesian Biodiversity

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RISTEK-3

Validation and Optimization on Lemongrass Ethanolic Extraction Using Percolator

Maria D.P.T. Gunawan Puteri, Diah I. Widiputri, Filiana Santoso, Victor S. Ringoringo, Bennedick Donato, Elena Santoso

ABSTRACT

Lemongrass, also known as Cymbopogon citratus, is widely recognized for its fragrant qualities, which are commonly used as spices in Asian countries. Previous research has found that lemongrass can decrease the absorption of glucose in the human intestine by inhibiting the alpha-glucosidase enzyme. Caffeic acid and kaempferol are polyphenols derived from lemongrass which could function as alpha-glucosidase inhibitors (AGI). Pure lemongrass extract in Indonesia is not common and many of the lemongrass extracts in the Indonesian market contain maltodextrin which decreases the AGI activity. This research focuses on optimizing ethanolic extraction to obtain high yield and high AGI activity. There are four experiments in this study to optimize lemongrass ethanolic extraction; the solvent for ethanolic maceration, the optimum temperature of ethanolic maceration, the effect of ethanolic upscaling, and lastly the time of ethanolic percolation. The comparison of the solvent experiment concludes that there is no significant difference between 50% Ethanol and 70% Ethanol; there is also no significant difference in yield and AGI activity from maceration at room temperature, 30oC, 35oC, and 40oC. The upscaling of ethanolic extraction from lab-scale to percolator maceration decrease significantly in 24 hours but not for the AGI activity. The optimum percolation time after maceration is above 90 minutes. In conclusion, the best parameters for the extraction are 50% Ethanol solvent, and 5 hours of maceration at room temperature prior to the 90 minutes of percolation.

Keywords: Lemongrass, Ethanolic Extraction, Cymbopogon citratus, Ethanolic Percolation, Up-scaling Extraction, alpha glucosidase inhibitor.

Project Title/Topic	:	*"PENERAPAN EKSTRAK SERAI SEBAGAI OBAT HERBAL TERSTANDAR UNTUK MANAJEMEN DIABETES"*
Team Members	:	**Maria Dewi Puspitasari Tirtaningtyas Gunawan Puteri, S.TP., M.Sc.,Ph.D**, Dr.-Ing Diah Indriani Widiputri ST., MSc., Dr.rer.nat Filiana Santoso

RISTEK-4

BLUETOOTH LOW ENERGY (BLE) FOR TRACKING AND DATA ANALYTICS TOWARDS MICE HYBRID VISITORS IN THE NEW NORMAL COVID-19 ERA

Maulahikmah Galinium

ABSTRACT

MICE (Meeting, Incentive, Conference, Exhibition) has shown a significant promise in its industry growth by virtue of its usage in some Indonesia's big events, such as the 2018 G20 Summit held in Bali. MICE is important for seeing the visitors at a different angle, such as having an insight on the most visited booth of the event, how long the visitors spend time in one booth, and so on. The need of an application on this research for tracking visitors will be high especially during this Covid-19 pandemic. Therefore, to support the Indonesia economy recovery for years to come, especially on the MICE, a visitor tracking application is developed and tested. The purpose of this research is to develop algorithm for measuring the distance between visitors and the visitor density of a certain area in real time. This algorithm is implemented in the MICE event's visitor mobile tracking application which uses Internet of Things (IoT) and Big Data Analytics as their foundation to embrace the new normal. The six BLE Beacons were tested by a testing app developed using a Javascript framework called React Native. The app is used to capture the packet broadcasted by the Beacons. The app uses a third-party library developed by Kontakt.io. In conclusion, among 6 beacons have been tested, Digoo Bytereal iBeacon BLE 4.0 and DS Beacon V1.0 are the most versatile and will be used in the next experiments.

Keywords: Hybrid MICE industry; Bluetooth Beacon; visitor tracking;

RISTEK-5

Development of ceramic membrane for biodiesel purification process

Samuel P. Kusumocahyo, Silvya Yusri, Hery Sutanto

ABSTRACT

Biodiesel is commonly produced through a transesterification reaction of vegetable oils such as crude palm oil with methanol in the presence of catalyst. In this reaction, glycerol is produced as a by-product that must be removed from the biodiesel since the presence of glycerol in biodiesel causes diesel engine problems. In this study, a ceramic microfiltration membrane was developed with the aim to remove glycerol from biodiesel through a microfiltration process. A mixture of alumina and kaolin was used as the raw material of the membrane that was prepared through a slip casting method of an alumina-kaolin suspension and followed by a drying and sintering process. To study the separation performance, the membrane was tested through a microfiltration experiment using biodiesel containing 1000 ppm glycerol as the feed solution. The results of the microfiltration experiment showed that the alumina-kaolin membrane exhibited high permeate fluxes ranging from 41 to 70 L/(m2h). The purified biodiesel in the permeate contained glycerol with a concentration of 94-98 ppm, indicating that most glycerol molecules were rejected by the membrane with rejection values of 90-91%, whereas biodiesel molecules passed through the membrane. The glycerol concentration in the purified biodiesel was lower than the maximum glycerol concentration that was set by international standards such as EN 14214 and ASTM D6751. The high selectivity of the alumina-kaolin membrane was correlated with the microstructure of the membrane that had an average pore size of 0.18 µm as measured using Brunauer-Emmett-Teller (BET) analytical method. The result of this study showed that the alumina-kaolin microfiltration membrane has great potential to be applied for the industrial biodiesel purification process.

Keywords: biodiesel, glycerol removal, ceramic membrane, microfiltration

MF-1

PENGEMBANGAN AGROINDUSTRI DI DESA SEMAWUNG – KABUPATEN PURWOREJO YANG TERINTEGRASI DENGAN PROGRAM DESA SEJAHTERA ASTRA: PROGRAM LANJUTAN KEDAIREKA 2021

Tabligh Permana, Silvya Yusri, Febbyandi Isnanda Pandiangan

ABSTRACT

Pada tahun 2021, melalui program matching fund kedaireka, telah dikembangkan fasilitas pengolahan porang dan susu kambing di Desa Semawung. Program tersebut berkolaborasi dengan PT Diva Prima Cemerlang dan Kemindo Group sebagai mitra DUDI. Fasilitas yang telah dikembangkan mampu menghasilkan produk porang chips, porang bubuk, dan susu kambing etawa bubuk. Proses pengeringan porang chips dilakukan dengan menggunakan oven, sehingga biaya produksi menjadi besar. Pada program kedaireka Tahun 2022 dibangun fasilitas greenhouse untuk pengeringan porang menggunakan pemanasan dari matahari. Pogram tahun 2022 juga mengembangkan proses pemurnian porang dengan menggunakan ball mill crusher yang dilengkapi cyclone pemisah partikel berdasarkan berat jenis. Pada program kedaireka 2021, fasiitas pengolahan susu kambing dan porang masih bergabung dalam area yang sama, maka di tahun 2022 dikembangkan fasilitas pengolahan susu kambing baru yang terpisah dari fasilitas pengolahan porang. Selain itu juga dikembangkan fasilitas pengeringan susu kambing dengan menggunakan spray dryer, untuk meningkatkan kualitas susu kambing bubuk yang dihasilkan. Fasilitas pengolahan susu kambing dan porang yang telah dibangun akan diintegrasikan dengan program Desa Wisata, dan menjadi salah satu atraksi wisata edukasi yang melangkapi destinasi wisata di Kabupaten Purworejo. Sebagai penunjang, bekerja sama dengan pemerintah Desa Semawung, juga dikembangkan peternakan kambing etawa untuk wisata, yang terintegrasi dengan fasilitas pengolahan susu kambing etawa yang telah dibangun.

Keywords: porang, susu, etawa, wisata, agroindustri

Team Members : **<u>Tabligh Permana, S.Si, M.Si</u>**, PEMERINTAH DESA SEMAWUNG PURWOREJO / KELURAHAN SEMAWUNG KAB. PURWOREJO

MF-2

Pengembangan Produksi Inovasi Pangan Lokal Fungsional (Pangan Lokal Untuk Kesehatan) Berorientasi Ekspor

Maria D.P.T. Gunawan Puteri, Tabligh Permana, Filiana Santoso, Elisabeth K Prabawati, Febbyandi I Pandiangan, Filiana Santoso, Elza Wijaya, Aninda Indriani, Diah I Widiputri, Abdullah Muzi Marpaung

ABSTRACT

Kekayaan sumber daya nabati Indonesia yang disertai bukti saintifik dari penggunaannya untuk kesehatan merupakan potensi besar untuk menjadi komoditas lokal dengan potensi pasar global. Teknologi pangan memiliki peranan penting untuk memperkuat pangan dan pertanian Indonesia. Pengolahan sumber daya nabati Indonesia tidak hanya dapat memenuhi kebutuhan pangan lokal, tapi akan jadi modal untuk Indonesia merambah pasar global.

Menangkap tren tersebut, PT Tumbuh Sukses Nastari (PT TSN) bergerak di manufaktur pangan untuk kesehatan. Kerjasama PT TSN dan PT SGU sebenarnya telah dimulai sejak tahun 2019 untuk hilirisasi penelitian produk pangan untuk kesehatan. Saat satunya dalam menghasilkan current product PT TSN yaitu minuman enzim dari jus nanas untuk kesehatan. Kendala yang dihadapi adalah keterbatasan kapasitas aplikasi teknologi, pengembangan dan pengujian, serta akses pasar internasional.

Universitas Swiss German (USG) terutama melalui program studi teknologi pangan mampu memberikan solusi dalam pendampingan teknologi, sertifikasi, pemasaran, maupun dalam menyediakan prototype produk pangan untuk kesehatan. Sejak tahun 2005, tim dari SGU telah melakukan berbagai penelitian untuk pengembangan pangan untuk kesehatan dari bahan alam dan bahan pangan nabati Indonesia.

Program yang diajukan pada proposal ini akan berlangsung dari bulan Juni – Desember 2022 untuk mengembangkan fasilitas produksi dalam memenuhi kuantitas dan kualifikasi produk berorientasi ekspor. Pengembangan ini akan dibagi berdasarkan jenis produk yaitu inovasi minuman fungsional, kaldu nabati dari kedelai terfermentasi, dan tempe instan.

Dalam pelaksaannya akan dilakukan pengembangan sistem produksi dan validasi sistem, termasuk diantaranya program pendampingan keamanan pangan dan sertifikasi untuk meningkatkan trust konsumen serta akses distribusi produk. Selain itu, dengan melibatkan prodi manajemen bisnis, maka akan dilakukan pengembangan bisnis dan pemasaran. Mahasiswa dan alumni akan dilibatkan pada program ini dan program ini juga akan memanfaatkan hasil karya serta pengetahuan dan skill dosen dan mahasiswa. Pendampingan SGU kepada PT TSN juga akan terintegrasi dalam tridharma dosen dan kegiatan mahasiswa di luar kampus serta pelibatan mahasiswa secara aktif melalui magang, field trip, dan case study.

Keywords: komersialisasi, kesehatan, pangan lokal, pangan fungsional, inovasi produk pangan

SGU SYMPOSIUM 2022

This presentation is part of activities under the scheme of <u>Matching Fund Kedaireka</u> project with below details:

MF-3

Developing Coffee Capsule with Flavor Technology Innovation
Rano Abryanto.

ABSTRACT

Coffee is one of the plantation commodities that has sufficient economic value high among other plantation crops. This business opportunity is large enough to be developed, especially with the peculiarities of the type of coffee in Indonesia that is rarely owned by other countries. It is a big impact that Indonesia is now the third largest exporter country in the world after Brazil and Vietnamese. Launching from data from the Ministry of Agriculture, in 2020 it is estimated that coffee needs the world will reach 10.3 million tons (ICO, 2019).

Innovation of the coffee capsule industry has witnessed optimal growth in recent years and is likely to continue even in the coming years. Industry size growth Coffee capsules can be attributed to increased investment in research activities & Development, influx of new players, product innovation, technological breakthroughs, resource allocation effective power, and increased competition among business rivals to expand the base regional as well as its customers.

PT. Sanika produces coffee capsules (Nespresso compatible capsule) as one of the innovations superior products offered to domestic and international consumers.

Capsule Coffee produced by Sanika for the time being has not been protected with wealth

intellectual in terms of brand and outer packaging, while for the packaging of the capsules themselves is an open innovation so that it can be produced freely. Adding flavor technology will giving them an option to become the market leader as a local brand. This program activity are collecting information by Forum Group Discussion with Indonesia Coffee Association, visit local farmers, visit factory, workshop and consult to flavor house. This program runs in 4 activities, and it will end in December 2022.

Keywords: coffee, coffee capsules, flavor technology, innovation, green beans.

MF-4

Komersialisasi Inovasi EKG Pintar Pendeteksi Dini Kelainan Jantung

Aulia Arif Iskandar, Muhammad Fathony

ABSTRACT

Penyakit jantung merupakan penyakit yang paling tinggi menyebabkan kematian di Indonesia dan dapat dipengaruhi oleh pola hidup yang tidak sehat seperti merokok, hipertensi, obesitas, dan diabetes. Dengan berkembangnya teknologi wearable sensor, perangkat EKG (elektrokardiogram) yang biasa ada di klinik atau di rumah sakit, sekarang dapat digunakan sambil beraktifitas. Ditambah lagi dengan perkembangan kecerdasan artifisial yang dapat membantu dokter atau kardiolog dalam memberikan diagnosa secara cepat, terutama untuk mendeteksi dini kelainan jantung. Adapun masalah yang ingin diselesaikan adalah masyarakat yang memiliki resiko penyakit jantung tersebar di seluruh pelosok Indonesia sedangkan kardiolog dan alat medis EKG yang umumnya ada di kota besar. Dengan tersebarnya resiko masyarakat terkena penyakit jantung di Indonesia, reka cipta ini memiliki kemampuan untuk melakukan pengukuran sinyal EKG dengan mudah yaitu dipasang di dada menggunakan chest strap dan hasil dari pembacaan EKG awal ini dapat digunakan sebagai pra-diagnosa untuk penelusuran lanjutan di klinik atau rumah sakit, jika diperlukan. Sehingga dapat memberikan pelayanan kesehatan ke daerah dan jika gejala penyakit jantung dapat ditangani sejak dini, maka akan lebih cepat tertangani dan merubah pola hidupnya menjadi sehat. Rekacipta ini dapat mendukung kemandirian alat kesehatan dalam negeri dan membantu kardiolog untuk melakukan screening cepat terhadap masyarakat yang memiliki gejala penyakit jantung via telekonsultasi dari sinyal EKG.

Keywords: EKG, kecerdasan artifisial, pra-diagnosa, telekonsultasi, kardiologi

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MF-5

Capacity improvement and validation test of microscope scanner product for detection of cancer

Kholis Abdurachim Audah, Aulia Arif Iskandar, Diah Prabawati Retnani, Thareq Barasabha

ABSTRACT

Cancer is one the leading death causing diseases. Therefore, fast and accurate diagnosis of cancer is very important so that it can be treated fast and accurate as well. In Indonesia, detection of cancer heavily relies on very limited number and uneven distribution of pathologist. This condition is even worse with the fact that Indonesia is an archipelago country, thus the mobility of pathologist is very restricted. To overcome this problem, there should be an innovation in the field of telepathology to detect cancer in a fast, accurate and efficient manner.

This study is focusing on the development of an affordable microscope scanner to help healthcare providers particularly in cancer diseases to be able to detect cancer without physical restriction of the experts. The instrument is a modification of a binocular microscope with the ability to scan whole slide imaging (WSI) in order to obtain images from a larger area that will produce more representative results. The images obtained by the instruments will be stored in the cloud storage so they are accessible to pathologist wherever they are. This year activity is to improve the capacity of the instrument as well as validation of the instrument and the imaging results by pathologists at the partner hospitals.

Keywords: Microscope scanner, cancer detection, telepathology

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MF-7

Implementasi Innovassi Pendampingan UMKM Naik Kelas di Tanggereang Selatan dengan Strategi ReBranding, Repacking dan Digital Marketing Melalui Koperasi

NIla K Hidayat, Filiana Santoso, Robert La Are, Munawaroh, Antonius Siahaan, Kho I Eng

ABSTRACT

Program ini bertujuan untuk menjadikan UMKM di Tangsel bisa meningkatkan tampilan kemasan dan melakukan penyegaran terhadap merek mereka sehingga bisa meningkatkan penjualan. Selain penyegaran merek dan kamaşan. kanal penjualan juga di perluas dengan melakukan upgrade penjualan melalui platform digital. Platform digital penjualan di design melalui Koperasi Gerai Lengkong sebagai agent. Dengan metoda ini maka diharapkan lebih data gắng marketingnya

Keywords: Rebranding, repacking, platform digital, herai Lengkong

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Implementation and Launching of Sororitas

Deborah N. Simorangkir, Sharon Schumacher

ABSTRACT

Indonesia is experiencing a state of sexual violence emergency, marked by a drastic increase in the number of cases of sexual violence in recent years, including in the education industry. This community service activity aims to build a discussion forum site to provide social support for survivors of sexual abuse in Indonesia, especially women. Sororitas.sgu.ac.id was developed based on findings from a previous research involving in-depth interviews with representatives from four organizations, and a survey of audiences. The objectives of this community service activity are as follows: 1) To establish standard operating procedures for Sororitas; 2) To cooperate with partner organizations; 3) To recruit website managers through UKM Sororitas Club; and, 4) To complete and launch the Sororitas web site. With the establishment of the Sororitas Club and the use of SGU's hosted domain, the sustainability of the Sororitas discussion forum site is more ensured. The next activity to be carried out is to strengthen and increase cooperation with partner organizations. Some of these activities can be in the form of seminars, research, or counseling.

Keywords: Sororitas, social support, sexual abuse, online forum discussion

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CCSF-2

Science Mini Lab Kit For School From Home

Febbyandi I. Pandiangan, Aulia Arif Iskandar, Abdullah Muzi Marpaung, Maria DPT Gunawan Puteri, Filiana Santoso, Evita Legowo, Kholis A Audah, Irvan S Kartawiria, Samuel P Kusumocahyo, Hery Sutanto, Diah I Widiputri, Tabligh Permana, Muhammad Fathony, Silvya Yusri, Elisabeth Prabawati, Fuad Ughi, Della Rahmawati

ABSTRACT

Swiss German University (SGU) is committed to supporting the development of science and technology in the younger generation for the foundation of Indonesia's development. The Coronavirus pandemic is not an obstacle to promoting research for the younger generation. The Indonesian Fun Science Award (IFSA) is a scientific research competition in Indonesia for high school students that requires participants to raise unique, funny, and refreshing research ideas. IFSA 4.0 was held in a combination of workshops and experiments from home using science lab kits. This project was part of the IFSA 4.0 event series which consisted of 4 science lab kits: electricity and electronics, making your soap, wonder bottle, and making your own Tempe. Based on the statistical test results of the pre-test and post-test during the experiment from home using science lab kits using the Paired Sample T-Test method, there was a significant increase in science knowledge ($p < 0.05$) in the participants of the science from the home workshop. A science lab kit is a practical approach to teaching science remotely, particularly during the pandemic and post-pandemic period. With the IFSA 4.0 event, it is hoped that it will foster critical, systematic, and creative research in the younger generation of Indonesia that doing research is a fun activity.

Keywords: Indonesian fun science award (IFSA), young scientist, science lab kit, science from home

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SGU SYMPOSIUM 2022

MSc , Tabligh Permana, S.Si, Dr. Muhammad Fathony, Silvya Yusri, S.Si, Elisabeth Parabawati, Fuad Ughi, Della Rahmawati

SGU SYMPOSIUM 2022

CRF-1

The Role of Strategic Alliances, Innovation Capability, Cost Reduction in Enhancing Customer Loyalty and Firm's Competitive Advantage

Soebowo Musa

ABSTRACT

Disruptive business environment such as the Covid-19 pandemic and the recent high volatility in commodity prices has changed the way businesses were conducted. The heavy equipment industry is one of many industries affected by such a disruptive environment, especially those who are related to the mining industry where the volatility of the commodity prices has a significant impact on their business performance. Alliances are commonly formed by heavy equipment distributors and their customers to create a mutual benefit to sustain their performance. Strategic alliances have attracted substantial attention from industry as well as academia as a way to stay competitive. Most strategic alliances focus on the strategic alliances partner-to-partner in serving their customers. Consumer behaviour has changed due to disruptive forces that make firms' strategic focus more on human-centric business approaches. This study looks at the roles of strategic alliances in the partner-to-customer relationship, innovation capability, and cost reduction toward customer loyalty and competitive advantage. Data was collected from 335 respondents from the firms that have entered into strategic alliances. This study finds strategic alliances have the highest association with cost reduction, followed by their association with innovation capability. Strategic alliances enhance customer loyalty through innovation capability. Cost reduction is not a lever to develop customer loyalty in the strategic alliance partner-to-customer relationship. The study also confirms that operational efficiencies are necessarily the source of competitive advantage, but strategic alliances are.

Keywords: : strategic alliances, innovation capability, cost reduction, customer loyalty, competitive advantage

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CRF-2

The Role of P2P Lending System Towards Micro, Small & Medium (MSM's) Enterprises Financing in Improving Financial Inclusion & Literacy Strategies in Indonesia

Antonius TP Siahaan

ABSTRACT

The study aims to understand the development and benefits Peer to Peer Lending in its role in supporting the growth of micro, small and medium enterprises in Indonesia which will simultaneously increase the growth of financial inclusion & literation rates in Indonesia with specific objectives is to analyze the factor that contribute to MSMEs decision in taking loans through P2P lending. By knowing factors that influence the preferences of millennials and Generation Z in choosing fintech – Peer to Peer(P2P) lending in obtaining financial support for their business financing, we can design policies and various advocacy to encourage the growth of P2P fintech in Indonesia and find out what financial products really needed by MSMEs. This study uses a quantitative approach to determine and measure the effect of independent variables on the dependent variable related to financing factors with statistical data and also used qualitative approach through a secondary data approach obtained from a literature review sourced from books, journals, related sources. The study respondent consists of 277 micro small medium enterprise in Java Island, Indonesia which domiciled in Jabodetabek and outside jabodetabek. The study focuses on micro small medium enterprise that used P2P lending to support their business, therefore, type of MSME divided into three types of industry i.e., manufacture, trading and service. Study shows that the majority type of respondent from trading industry with 53.3%, followed by service industry with 26.9% and manufacture with 19.8%. the majority respondent was domicile outside Jabodetabek with 33.9%, followed by Tangerang (27.3%), Jakarta (22.9%) and Bekasi (15.9%). The research used structural equation model (SEM) with partial least square (PLS) to find the relationship between exogenous and indigenous and also it predicts the construct variable of the study (Garson, 2016). From five hypotheses that we developed we found only two hypotheses are supported in the model which are Performance Expectancy and risk appetite which shows that the P2P lending are supporting the MSMEs financing performance, while the other three hypotheses which are effort expectancy, social influence, and facilitating condition are rejected.

Keywords: Financial Inclusion, P2P Lending, MSMEs, Financial Literacy, Fintech

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(MSME's) ENTERPRISES FINANCING IN IMPROVING FINANCIAL INCLUSION & LITERACY STRATEGIES IN INDONESIA

(STUDY CASE ON MILLENNIALS & GENERATION Z)"

Team Members   : **<u>Dr. Antonius TP. Siahaan, SE.,Akt.,MM.,CA</u>**, Alfiandri, SE, M Acc, CA

Quantitative Easing, liquidity and Banking Growth; Evidence from Indonesian Banking System

Soebowo Musa, Mira Maulida

ABSTRACT

This study investigates the effect of bank liquidity position during the quantitative easing (QE) in the pandemic years on the growth of loans. The data covering the Indonesian banking industry range from the years 2008 and 2021. Other important determinant variables from bank-specific variables are also included in the model and the macroeconomic measures. Additionally, this research distinguishes the drive of loan growth from the demand and supply approach. Using a static data panel regression model, it discovers that the liquidity position of banks positively impacts the growth of loans in the long run, likewise the dummy of QE year, however, the impact diminishes when other variables are involved in the model. Interaction between liquidity and dummy QE results in a negative sign which implies that the QE program leads to negative influences of liquidity on the credit expansion during the pandemic year compared to the period without QE. These characteristic postulates that banks are forced to apply for prudent credit approval and some of their liquid assets are transferred into marketable securities. The supply-driven loan is more sensitive to influencing the growth of loans. Other important findings come from bank-specific variables where well-capitalized banks and bigger banks enjoy their credit growth, however, banks with higher problem loans are forced to reduce their growth. Consequently, special attention must be paid by the monetary authority to small-size banks, banks with higher loan problems as well as weaker equity banks to maintain the financial stability that impacts badly on the growth of the economy as a whole.

Keywords: Lending Growth; Quantitative Easing; Liquidity, Pandemic; Equity

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SGU SYMPOSIUM 2022

CRF-4

Analysing The Capabilities Of Village Owned Enterprises (VOEs/BUMDES) To Increase The Village Economies; An Empirical Studies From VOEs/BUMDES In Tangerang

Nila Krisnawati

ABSTRACT

There is a significant growth of Village Owned Enterprises (VOEs) in four regions in Banten Province, however 43% are in active status. The study aims to analyze the general condition of VOEs and its main potential product/characteristic in Tangerang Regency and to deliver the Gap Analysis by the Village Own Enterprises (BUMDes) in Tangerang Regency. The primary data was collected through a Focused Group Discussion (FGD) with eight participants from different VOEs. The result from FGD showed that there were some critical gaps in the operational of VOEs such as lack of community participation to take part in BUMDes programs, unclear vision since its establishment, and lack of mentoring. It is necessary to conduct mentoringship among the VOEs to increase the motivation as well as to strengthening the community participation. The The growth of current VOEs in Tangerang Regency will bring significant impact to the village economy in the long run

Keywords: Village Owned Enterprises (VOEs), Community Participation, Capabilities, Village Economy

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SGU SYMPOSIUM 2022

CRF-5

Indonesia's Elimination of Sexual Violence Bill: A Framing Analysis of Coverage by Foreign Online Media
Deborah N. Simorangkir

ABSTRACT

Indonesia has been experiencing an increase in the number of sexual violence cases and this number has spiked even more during the Covid-19 pandemic. The Elimination of Sexual Violence bill (RUU PKS) was drafted by the National Commission on Violence against Women and the Service Provider Forum. On January 26, 2016, it was proposed to the House of Representatives (DPR). It focuses on the prevention of sexual violence, giving more rights to victims, as well as acknowledging marital rape. This bill was then incorporated into the 2016 Priority National Legislation Program (Prolegnas). However, in July 2020, the bill was dropped by the DPR, stating 'difficulties' to further discuss the matter. Since 2016, there have been numerous petitions, demonstrations, and protests demanding the immediate ratification of the RUU PKS. All these events have attracted media attention. The way these media cover news about Indonesia has a big effect on the international public perception about Indonesia. This research seeks to answer: How do online foreign media frame news about Indonesia's Elimination of Sexual Violence bill? And; How has the framing of news about Indonesia's Elimination of Sexual Violence bill shifted over time (2016-2022)? This study involves a framing analysis using codes in accordance with Robert Entman's (1993) four framing levels: Definition of the problem; Diagnosis of cause; Moral judgment; Treatment recommendation. The research population consists of all English language news articles on Indonesia's Elimination of Sexual Violence bill covered by non-Indonesian online news outlets from 2016 to 2022.

Keywords: Elimination of Sexual Violence Bill, RUU PKS, framing analysis

CRF-6

Development Chest-Mechanomyogram with Wireless Monitoring and Signal Interpretation for Respiratory Monitoring

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ABSTRACT

Although the pandemic is now under control, non-invasive methods to monitor the respiration rate are preferable to minimize the virus's spread. In this research, the goal is to develop a low noise signal acquisition device as an Internet of Medical Things (IoMT) with wireless connectivity and MQTT protocol for chest movement monitoring as a non-invasive method to measure the respiration rate. The prototype uses an accelerometer with I2C communication that is connected to the ESP32 WiFi microcontroller. Inside the controller, a digital 2nd order Butterworth low pass filter and a peak detector is used to determine the inflection point of the inhale-exhale action. Then, the respiration rate value is calculated and sent to the data server via the topics on the MQTT protocol. The measurement data are displayed on the Node-red server dashboard that shows the subject's respiration rate value, inhale-exhale graph, and connection status. Five healthy subjects were used to compare this method with the golden standard and statistically analyzed using the paired T-Test. The results are similar to the golden standard with no significant difference on all of the subjects. The prototype opens alternative methods to safely monitor the subject's respiration rate and remotely observe their respiration activity.

Keywords: respiration rate, non-invasive, accelerometer, MQTT, IoMT

CRF-7

DEVELOPMENT OF INDOOR LOGISTIC AUTONOMOUS MOBILE ROBOT USING BEHAVIOUR TREE BASED ON ROBOT OPERATING SYSTEM 2

Leonard Rusli , Rusman Rusyadi, Getrich Malvern Tanaka

ABSTRACT

Most industries are now using Autonomous Mobile Robot (AMR) than Autonomous Guided Vehicle (AGV) for the labor work such as transporting goods from one place to another. AMR unlike AGV, can navigate and create its own path and map and it can also avoid any obstacles on the way autonomously. These all are possible with the help of sensors such as camera, lidars, and IMU that is installed in the AMR. This thesis will focus on development of AMR with behavior tree based on ROS2 with camera for front elevation of obstacle avoidance, and battery swapping mechanism for more efficient runtime. By integrating AMR with Behavior Trees, it will switch between tasks in a modular fashion that ease human understanding and make it less error prone, it is also modular, reusable, and good separation of concern to create a complex tasks.

Keywords: Indoor AMR , ROS2, Behaviour Tree