Fakulti Teknologi Kejuruteraan Elektrik dan Elektronik (FTKEE)
Senarai Penawaran Tajuk PSM 1 Sem 2 Sesi 2020/2021
BEEZ

BIL	NAMA PENYELIA	PROGRAM	TAJUK	SYNOPSIS	CATEGORY	TITLE CODE
1	AHMAD NIZAMUDDIN B MUHAMMAD	BEEZ	Design of carbon based Kretschmann-Surface Plasmon Resonance (K-SPR) sensor using Taguchi-Grey Relational Analysis (GRA) method for creatinine detection.	Kretschmann-based surface plasmon resonance (K-SPR) sensor utilizing Cr/Au/graphene nanofilms are ideal for label-free biomedical sensing. In this work, Taguchi's L9 Orthogonal Array (OA) method will be used to optimize the effects of four control factors and noise factor which are the incident optical wavelength, chromium (Cr) and Au layer thicknesses, graphene layer thicknesses, and their root-mean-square (RMS) surface roughness on the performance of the K-SPR sensor. The control factors were varied for four levels for a novel multi-response SPR sensor optimization for the minimum reflectivity (Rmin), the full-width-at-half-maximum (FWHM) and the sensitivity of creatinine detection using simulation.	PRACTICE ORIENTED	BEEZ_T01
2	AHMAD NIZAMUDDIN B MUHAMMAD	BEEZ	Design of Kretschmann-Surface Plasmon Resonance (K-SPR) sensor based on conductive polymer using Taguchi-Grey Relational Analysis (GRA) method for glucose detection.	Kretschmann-based surface plasmon resonance (K-SPR) sensor utilizing Cr/Au/MWCNT nanofilms are ideal for label-free biomedical sensing. In this work, Taguchi's L9 Orthogonal Array (OA) method will be used to optimize the effects of four control factors and noise factor which are the incident optical wavelength, chromium (Cr) and Au layer thicknesses, MWCNT layer thicknesses, and their root- mean-square (RMS) surface roughness on the performance of the K-SPR sensor. The control factors were varied for four levels for a novel multi-response SPR sensor optimization for the minimum reflectivity (Rmin), the full-width-at-half-maximum (FWHM) and the sensitivity of urea detection using simulation.	PRACTICE ORIENTED	BEEZ_T02
3	AHMAD NIZAMUDDIN B MUHAMMAD	BEEZ	Development of Autonomous IoT Based Medical Drone Using Raspberry Pie and Microcontroller	The idea of medical drone is often being listen, but until now, only several countries are started to implement the use of medical drone on their community like China, Africa and so on. They are more benefit that can achieve by using this technology. The first problem is the cost to build the drone is high when using the hi-tech technology. So that, I decide to build a low-cost drone but have the same technology as other medical drone that being used. The drone is loaded with basic medical equipment for first aid when accident happen. Material / Equipment 1. Raspberry pie 3 model B+ 2. Pixhawk 2.4.8 Flight Controller 3. Brushless Motor x4 4. Electronic control board (ESC) x4 5. Radio Transmitter and Receiver	PRACTICE ORIENTED	BEEZ_T03
4	DAYANASARI BINTI ABDUL HADI	BEEZ	Development of automated premise check-in with simultaneous temperature checker system using NodeMCU	Temperature checking is one of the essential steps before entering a building during a pandemic crisis. Most of the temperature checking implementation is separated between the check-in system like mySejahtera and the temperature data is not recorded in the check-in system. This project used to embed the temperature checker with the check-in system so that the person's temperature is recorded simultaneously with the check-in system database and displayed through the mobile application. When a user wants to enter a premise, they are required to scan a bar code of the premise to input their detail into the check-in database. Their details will appear in the mobile application and a message will pop-up that asks the user to scan for their temperature. Once the person scans the temperature, it will be recorded in the same check-in database and displayed in the same mobile application. A warning message will be displayed as the temperature is exceeding the allowed value. In this project, students need to design the database using a cloud database for user information together with their temperature, and for the mobile application, Android studio will be used to show their details via IoT. One of the advantage of this system is that the temperature of a person is record in real time basis together with the check-in information. The temperature data will be recorded simultaneously with the check-in database as compared to the current system implementation whereby the temperature data is not recorded in the check-in system database.	PRACTICE ORIENTED	BEEZ_T04
5	DR. FARA ASHIKIN BINTI ALI	BEEZ	Development of IOT Based Home Automation and Security System	Nowadays, sensor-based home automation has received a lot of attention. For example, home automation allows users to control household appliances such as lamp, fan, and air-conditioner. It is not only referring to reduce human efforts but also energy efficiency and time saving. On the other hand, home security also one of the important factors in today's life. The home security is the best burglar's deterrent one can have. It is essential that home privacy is always protected, and no outsider can affect it by any means. Therefore, the development of home automation as well as home security are necessary.	PRACTICE ORIENTED	BEEZ_T05
6	DR. FARA ASHIKIN BINTI ALI	BEEZ	Development of Microcontroller Based Logic Gates IC Tester	The fabrication of integrated circuit (IC) is done in a large amount. Then, each of the IC needs to be tested weather it is in good or bad working condition. In educational institutions, while performing practical it is necessary to check the ICs before performing experiments. This is because a small fault at IC level makes system perform inaccurately and produce wrong outputs. Therefore, a portable and easy to handle IC tester is necessary. The objectives of this projects are as follows: 1.To develop an IC tester for basic logic gates 2.To check the ICs in a short time and display results of ICs being good or faulty The project consists of software and hardware. For the software, student will use Arduino simulator for the circuit design. For the hardware, the student will use Arduino, ZIF socket, keypad and LCD display. The developed tester able to checks whether the IC used is in good or bad condition based on database. Results will be compared to the truth table.	PRACTICE ORIENTED	BEEZ_T06
7	DR. FARA ASHIKIN BINTI ALI	BEEZ	Development of Microcontroller Based Op-Amp IC Tester	The fabrication of integrated circuit (IC) is done in a large amount. Then, each of the IC needs to be tested weather it is in good or bad working condition. In educational institutions, while performing practical it is necessary to check the ICs before performing experiments. This is because a small fault at IC level makes system perform inaccurately and produce wrong outputs. Therefore, a portable and easy to handle IC tester is necessary. The objectives of this project are as follows: 1.To develop an IC tester for op-amp 2.To check the ICs in a short time and display results of ICs being good or faulty The project consists of software and hardware. For the software, student will use Arduino simulator for the circuit design. For the hardware, the student will use Arduino, ZIF socket, keypad and LCD display. The developed tester able to checks whether the IC used is in good or bad condition based on database. Results will be compared to the output wave.	PRACTICE ORIENTED	BEEZ_T07

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8	DR. HASLINAH BINTI MOHD NASIR	BEEZ	Development of Data Analysis Module using Fuzzy Model for Temperature Sensor Lifespan Prediction in Manufacturing Industry	The use of sensors in manufacturing is common, but it may delay the manufacturing process when the sensor is suddenly broken. Thus, the need of sensor lifespan prediction is crucial to avoid the delay of manufacturing process due to the broken sensor. The use of artificial intelligence for data analysis can be used to develop the module to predict the lifespan.	INDUSTRY BASED	BEEZ_T08
9	DR. HASLINAH BINTI MOHD NASIR	BEEZ	Development of Educational Application utilizing Voice Recognition	The purpose of this project is to develop an educational application with the speech recognition capability for reading learning purposes. The features of speech recognition were utilized to produce effective educational materials to the children especially who just started to learn on how to read. Teacheablemachine will be used for machine learning training to develop the content of the application while Android Studio will be used for application development.	PRACTICE ORIENTED	BEEZ_T09
10	DR. HASLINAH BINTI MOHD NASIR	BEEZ	Development of IoT Based Smart Extruder Machine for Controlling Compound Mass using Arduino	Mostly in manufacturing, the process of placing the compound in extruder machine are doing manually. This is time consuming and needs a lot of man powering. Thus, this project aims to develop automated extruder machine controller to let the compound to be placed with adequate amount in extruder machine by using one button. In addition IoT platform will be integrated into the system to easy monitor from one centre.	INDUSTRY BASED	BEEZ_T10
11	DR. HASLINAH BINTI MOHD NASIR	BEEZ	Development of IoT Based Smart Health Monitoring System for Driver Safety using Arduino	Accidents cause due to drunken driver and drowsiness increasingly immensely in this era. However, we can minimize the accidents by installing the proposed item inside the vehicle. This project is about detection of driver drunken or drowsiness and development of a smart health monitoring system for driver safety using the 'Internet of Things (IoT)' system. This system continuously monitors the air exhaled by the driver with alcohol sensor with threshold value setting and monitor number of second when driver's eyes are close with eye-blink sensor to detect driver drowsiness as well as record and sent driver data in cloud through IoT health monitoring system. This smart health monitoring for driver safety system was using heart beat sensor and temperature sensor to measure and recorded the health parameters of the driver for each use wirelessly by displaying the information directly on applications in the smartphones via WiFi and internet communications. If driver is identified with drunk or drowsy, a buzzer and vibration sensor will on to give warning to the driver. In case system detect driver drunk or driver drowsiness for the third time, then the real-time status of the driver informed to their friends or relatives through an SMS by using GSM (Global System for Mobile Communications). Driver's location can be traced by GPS (Global Positioning System) module and thus the driver can be assisted at the right time. As a result of this, the accident can be avoided and will help in saving the precious lives of drivers and co-passengers. The main objective of the project was to develop Smart Health Monitoring Application System using Internet of Things (IoT) and to enable alertness and monitoring real-time driver safety to friends or relatives through mobile application. In addition, using today's internet technology can improve	Practice-oriented	BEEZ_T11
12	DR. HASLINAH BINTI MOHD NASIR	BEEZ	Development of IoT based Smart Home Automation using NodeMCU	Smart home automated control system is a wireless emerging technology with great scope for future safe and smart home application. A lot of new application are now built on top of this technology with many innovation ideas. IoT is embedded into the smart home for easy access and monitor the electricity usage. Plug n Play system is expected to be developed to be ready used at home and industry.	INDUSTRY BASED	BEEZ_T12
13	DR. HASLINAH BINTI MOHD NASIR	BEEZ	Development of IoT based Smart Humidity Plant Monitoring system for Outdoor Farming using Arduino	Problem statement: Adequate amount of water to keep the plant grow healthy. Some of plant are needed lot of water and some aren't. Thus, smart watering is needed to monitor to ensure that the plant is always in good condition Methodology: The use of various sensor to make sure the plant receives optimal care. Arduino and IoT are integrated for real data monitoring.	INDUSTRY BASED	BEEZ_T13
14	DR. HASLINAH BINTI MOHD NASIR	BEEZ	Development of Therapeutic Video Game using Kinect for Neurorehabilitation of Post Stroke Patient	In current technology, in home gaming and simulations have been popular for rehabilitation. It can help to increase the motivation of the patients in the process of recovery. By using microsoft kinect, gaming rehabilitation can be developed which allow the patient to interact with a game using natural and free movement interface. By utilize a kinect sensor as a console, the patient is no longer needed to hold any controller that limits the patient's movement.	INDUSTRY BASED	BEEZ_T14

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15	DR. MOHD MUZAFAR BIN ISMAIL	BEEZ	Development of electromagnetic wave technique for electromagnetic radiation detection on human skin cell	This project is develop electromagnetic wave technique for detect how far wave will propagate in human skin cell at certain frequency. It can help preliminary detection on skin effect if skin cell damage. The result can help doctor to diagnosed either damage cell have a risk to be cancer cell. Technique method use mathematical modelling which is finite time domain method (FDTD) with advanced programming languages. preferable Matlab or phyton.	PRACTICE ORIENTED	BEEZ_T15
16	DR. MOHD SYAFIQ BIN MISPAN	BEEZ	Design and Implementation of Built-in Self Test for Memory Architecture using Hardware Description Languange (HDL).	Time to market is very crucial especially for the technology-roadmap-related electronic products such as mobile phone and laptop. The competition to brings the latest technology to the market is really high between the manufacturers. One of the time consuming process during the product development is the testing of the product itself. The product must be fault free and fully functional when it reaches to the customer. Built-in Self Test (BIST) is one of the methods used to test the integrated circuit (IC) modules. BIST has the capability to reduce the testing time as the circuit can run the test by itself. In this project, we focus on design and implemenation of BIST for memory architecture on FPGA. The controller, pattern generator, memory (circuit under test), and output analyzer modules will be implemented using Verilog in Intel Quartus Prime Lite software and programmed onto the FPGA. The fully functional BIST for memory architecture is expected at the end of the project.	PRACTICE ORIENTED	BEEZ_T16
17	DR. MOHD SYAFIQ BIN MISPAN	BEEZ	Design and Implementation of Fraction Numbers Arithmetic based on Stochastic Computing versus Floating Points Unit using Hardware Description Language	Today's computing world is very competitive in which the processor manufacturers are focusing on developing the processor with latest technology with a reasonable cost. Circuit optimization can be very useful to reduce the manufacturing cost. As the number of transistors in the processor reduces, the manufacturing cost is reduces significantly. Therefore, in this project, we aim to design and implement the arithmetic of fraction numbers based on stochastic computing and floating points unit using hardware description language (HDL). The behavioural model which described in HDL will be synthesized using Mentor Graphic tools to convert into logic circuits. Subsequently, the performance such as area and power consumption will be analyzed and compared between stochastic computing and floating points unit. At the end of the project, a comprehensive analysis between stochastic computing versus floating points unit will be reported.	PRACTICE ORIENTED	BEEZ_T17
18	DR. MOHD SYAFIQ BIN MISPAN	BEEZ	Development of Baby Smart Monitoring System using Arduino Platform	The number of working mothers has greatly increased compared to the past few decades. Subsequently, baby care during daily life has become a challenge to many families. Thus, most of parents used to send their babies to grandparents' house or baby care-house to take care of their babies. However, the parents cannot continuously monitor their babies' conditions either in normal or abnormal situations. Therefore, this project proposes an efficient and low-cost Internet of Things (IoT) based system for baby monitoring in real time which can play a key role in providing better baby care while parents are away from their babies. This project presents a baby monitoring system for busy parents so that they can ensure the proper care and safety of their babies. This system can detect the baby's motion and sound; especially crying and video output of baby's present position can be displayed on a display monitor so that the mother or another responsible person can watch the baby while away from him or her. This baby monitoring system is capable of detecting motion and crying condition of the baby automatically. When the system detect the baby is crying, the cradle will swing automatically. Parents also can be able to manually set the swing speed as well. The Arduino UNO module is used to make the total control system of the hardware, condenser MIC is used to detect baby's crying and the cradle swing automatically according to the speed of swing which is set by the user, PIR motion sensor is incorporated to detect baby's movement and camera is used to capture the baby's motion. A display is used to have video output of sleeping baby. This proposed system can provide an easier and convenient way for busy parents in terms of taking care of their babies.	PRACTICE ORIENTED	BEEZ_T18
19	DR. MOHD SYAFIQ BIN MISPAN	BEEZ	Development of livestock feeding and temperature monitoring system using LORA IoT Platform.	Livestock sector in Malaysia is thriving day by day. The farmers need to expand their livestock sector to accommodate the high demand in the market. This product focus into chicken livestock sector in Malaysia. So, this product is develop to make it easier for farmers to monitor the feeding process and the right surrounding temperature of their livestock for having maximum outcomes and save up money and energy. This product can make sure the livestock are feeding right time and enough food automatically using LoRa Technology. The advantage of this system where it can be used to save up money and energy that can be obtained by having less workers. This is because of the hopper storage that can accommodate the food up to few days. The importance of this system is its ability to automate the feeding system for the livestock. Formers will also be informed on the weight of food in the storage and food container through The Things Network. This will allow the users to monitor the food storage and only come to refill it when it is empty. Farmers can also observe whether the livestock have eaten or not by getting updated on the level of food of the food storage using an ultrasonic sensor. For control specific surrounding temperature, is using the suitable temperature sensor. If the surrounding temperature drop, notification of the current temperature will send to the farmer and heater system automatically on to make sure the farm will get the right temperature. So this product has two main monitoring system, which is automatic feeder and surrounding temperature for heater system.	PRACTICE ORIENTED	BEEZ_T19
20	DR. MOHD SYAFIQ BIN MISPAN	BEEZ	Development of Smart Drying Rack System with Remote Control using Mobile Application.	In today's modern world, people always seeking a convenient and effective way of doing daily jobs. One of the daily things in people's lives that need improvement is when drying a load of laundry. Therefore, the objective of this project is to design a smart drying rack system with automatic and remote control using the mobile application. The system will be equipped with a rain and temperature sensor. When it rains, the system will roll-in the rack under the roof. The rack will be rolled-out back when the rain stops. The system will also send a notification when the clothes are dried. The drying time is an estimation based on the initial measurement data of the time taken for a cloth to dry on a sunny day. Moreover, the user able to control the roll-in and roll-out of the drying rack remotely using the mobile application. This feature is useful when the user receives a dried cloth notification but the user is not available at home. The smart drying rack system is expected to give a new satisfying experience to the customers and a convenient way for them in doing household works.	PRACTICE ORIENTED	BEEZ_T20
21	DR. MOHD SYAFIQ BIN MISPAN	BEEZ	Development of Tajwid AlQuran Detection Mobile Apps using Bray Curtis Distance for Android Platform	Learning to recite Quran with a correct tajwid can be a difficult process especially for childrens. An interactive mobile application can be a useful tool for children's learning. Hence, in this project, we aim to develop a mobile app that has a detection feature to recognize the tajwid on mushaf and provide an interactive information about the detected tajwid. The method of Bray Curtis Distance will be used to detect the image of tajwid on mushaf. The parent can use this interactive application for the learning process with their kids at home. An interactive mobile application that able to detect tajwid on mushaf and able to provide tajwid information is expected in this project.	PRACTICE ORIENTED	BEEZ_T21

BIL	NAMA PENYELIA	PROGRAM	TAJUK	SYNOPSIS	CATEGORY	TITLE CODE
22	DR. MOHD SYAFIQ BIN MISPAN	BEEZ	Development of Voice Command Grocery Shopping List Maker based on Arduino Platform	In today's modern world, people always seeking a convenient and effective way of doing daily jobs. One of the daily things in people's life that need improvement is when doing the grocery. Therefore, the objective of this project is to design a system that can use voice to list a grocery and display on the small LCD monitor at the kitchen area. The project will be using the programmable voice recognition module, the small LCD display, WiFi module, and Arduino board. The list of grocery will be linked to the Grocer App (i.e., developed by the previous PSM student). Whenever the user input a new data in the list via the voice command system, the list in the Grocer App will be updated. Moreover, the user can add, remove or overwrite the list by using Grocer App.	PRACTICE ORIENTED	BEEZ_T22
23	DR. MOHD SYAFIQ BIN MISPAN	BEEZ	Development of Web-based Live Tracking of Parcel Delivery System	The introduction of smartphone technology has increased tremendously the numbers of online shops as the users now can perform selling or buying kinds of stuff at their fingertips. This leads to an extreme increase in the number of parcels that need to be delivered to the customer's doorstep. Therefore, the courier services must use a very efficient delivery system or application that can save time and cost, and most importantly gives the satisfaction experience to the customers. Therefore, we propose a web-based live tracking of parcel delivery system. By using this web-based system, the customer will receive a delivery notification by sms when the courier is en-route to the customer's doorstep. Furthermore, the customer can use the developed web-system to check the parcel status and en-route location of the courier in real time. This system is expected to gives a new satisfying experience to the customers and a convenient way for them to track thier parcels.	PRACTICE ORIENTED	BEEZ_T23
24	DR. NOR AZLAN BIN MOHD ARIS	BEEZ	Development of IoT-based Extruder Machine Input-Output Monitoring System using Arduino Platform	Extruder machines are widely used in heavy industries in order to produce various types of products such as tubings, tire treads and wire coverings. However, it seems that there is no automatic documentation and data taking system applied to the extruder machine in the industries in order to monitor the relationship between the amount of the plastic granules to the length of the product produced. The purpose of the Plastic Extruder Machine I/O Monitoring System is to measure, record and store data of the mass of the input and the length of the output of the extruder machine. Force Sensitive Resistor (FSR) is used to measure the mass of the material with its ability to measure mass between 100g to 5kg of load. Moreover, ultra-sonic sensor is also used to measure the length of output product with the Arduino Mega 2560 R3 ATmega2560 as the main microcontroller used to control the entire process of this project.	PRACTICE ORIENTED	BEEZ_T24
25	DR. NORHASHIMAH	BEEZ	Development of Brain Computed Tomography Analysis for Stroke Treatment Decision Making using k Means Clustering Technique	Stroke is a "brain attack" that often causes paralysis, resulted from either bleeding in the brain (hemorrhagic) or the blockage of bloodflow to the brain (ischemic). Stroke is the second-largest cause of death in Malaysia. It posed a big challenge to Malaysian healthcare services with at least 32 deaths per day, while survivors were burdened with multiple problems. Unfortunately, Malaysia is facing a shortage of neurologists and this is hampering the effort to treat stroke patients whose number is on the rise. Computed tomography (CT) is a computerized imaging procedure to assess stroke in emergency setting. Conventionally, the diagnosis is performed manually by neuroradiologist during a highly subjective and time-consuming task. Therefore, this project intends to investigating CT images using state-of-the-art machine learning technique based on k Means clustering. Software used: Matlab. Database of the cases are also ready.	INDUSTRY BASED	BEEZ_T25
26	DR. NORHASHIMAH	BEEZ	Development of Electromyography Signal Analysis Technique using Spectrogram for Musculoskeletal Disorders	Musculoskeletal Disorders (MSDs) are the second most common cause of disability in the work setting and able to give an impact on fatigue and productivity of the workers. MSDs is involving the injuries and sicknesses that will be affected the human body's movement or musculoskeletal system as muscles, tendons, ligament, nerves, discs, blood vessel and others. Workplace pains and strains can be serious and disabling for workers, causing pain and suffering ranging from discomfort to severe disability because of MSDs problems. The impact of MSDs can be complicated, and overall health recovery may take a long time, extending beyond the treatment and rehabilitation phase. In Malaysia, injured workers from the industry are allocated at the Social Security Organization (SOCSO) Rehabilitation Centre to monitor the injuries and analyze the patients who are able to retain work. Several researches have shown that the Electromyography (EMG) signals of MSDs patients are different compared to a fit condition. Spectrogram is a robust technique for the analysis of the EMG signals because it provides information of the signal in time and frequency domain. In this project, spectrogram analysis technique of EMG muscle performance will be investigated to classify MSDs for health screening program.	INDUSTRY BASED	BEEZ_T26
27	DR. NORHASHIMAH	BEEZ	Development of Electromyography Signal Classification using Machine Learning Technique for Musculoskeletal Disorders	Musculoskeletal disorders (MSDs) are injuries in the human musculoskeletal system, which can cause critical occupational disabilities. In Malaysia, injured workers from the industry are allocated at the Social Security Organization (SOCSO) Rehabilitation Centre to monitor the injuries and analyze the patients who are able to retain work. However, the screening test has the disadvantage of efficiency since the results are obtained manually based on the instructor's observation rather than providing objective assessment regarding the matters. In this research, a machine learning technique for muscle Electromyography (EMG) performance will be investigated to classify MSDs for the health screening programs. Muscle fatigue, strength, force, and energy transfer will be measured through the EMG signal's information. The muscle performance between fit and MSDs condition will be classified via a machine learning process.	INDUSTRY BASED	BEEZ_T27
28	DR. NORHASHIMAH	BEEZ	Development of Lung Computed Tomography Analysis for COVID-19 Treatment Decision Making using Machine Learning Technique	As of Feb 2021, the Ministry of Health (MOH) has confirmed more than 231,500 new cases of COVID-19 infection in Malaysia. The huge growth in number make it very challenging for the medical staff to deal with the disease. Unfortunately, Malaysia is facing a shortage of medical staff and this is hampering the effort to treat the patients whose number is on the rise. Computed tomography (CT) is a computerized imaging procedure to assess the severity of the disease affected in the lung. Conventionally, the diagnosis is performed manually by neuroradiologist during a highly subjective and time-consuming task. Therefore, this project intends to investigating CT images using state-of-the-art machine learning technique. Software used: Matlab. Database: Lung CT Image of COVID-19 patients.	PRACTICE ORIENTED	BEEZ_T28

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29	Dr. Vigneswaran Narayanamurthy	BEEZ	Design and development of smart aquaculture system using Arduino	**MATERIAL** - ADAFRUIT WATERPROOF, DS18B20 DIGITAL, TEMPERATURE SENSOR, TURBIDITY SENSOR, PHOTOTRANSISTOR OUTPUT, ANALOG, DISSOLVED OXYGEN SENSOR, METER KIT FOR ARDUINO, ATLAS SCIENTIFIC CONSUMER, GRADE PH PROBE, HELIUM DEVELOPER KIT. **EQUIPMENT** - ARDUINO IDE, POWER SUPPLY **EXPECTED OUTCOMES** - aquaculture system is by continuosly online monitoring of water quality sensors such as water conductivity, dissolved oxygen, turbidity and PH improves feed ratios, minimizes fish stress, reduces fish disease and mortality.		BEEZ_T29
30	Dr. Vigneswaran Narayanamurthy	BEEZ	Design and development of smartphone based biosensor	MATERIAL- RASPBERRY Pi 2 MODEL B, ANDROID DEVICE, USB-A TO MICRO-USB CABLE EQUIPMENT – SENSOR UDP, RASPBERRY Pi RASPBIAN EXPECTED OUTCOMES – THE RASPBERRY RECEIVES SENSOR DATA FROM THE ANDROID PHONE AND CAN CONNECT TO THE RASPBERRY VIA WIFI THORUGH ANDROID PHONE To indulge in continuous processing, and also to identify the best technology, the analytical methods must be directly involved in decision making. This revolution in analytical methods is named as Analytics 4.0, which has a significant role in healthcare and diagnostics. The self-assessment and decentralization of the data acquiring can be motivated with the help of the biosensors.		BEEZ_T30
31	Dr. Vigneswaran Narayanamurthy	BEEZ	Design of Low-Cost Respiration Analysis System using Arduino	**MATERIAL** - LCD SCREEN, BUZZER, ALARM, NASAL TEMPERATURE SENSOR, AMBIENT TEMPERATURE TRANSDUCER, CAPACITOR, RESISTOR, MICROCONTROLLER **EQUIPMENT** - MATLAB, OSCILOSCOP, DC POWER SUPLY, PROTEUS, MPLAB **EXPECTED OUTCOMES** - CALCULATING THE RESPIRATION RATE WHICH IS SHOULD BE 12-20 BREATH/MIN BY MONITORING THE CHANGE IN THE BREATHING TEMPERATURE ACROSS THE NASAL REGION		BEEZ_T31
32	Dr. Vigneswaran Narayanamurthy	BEEZ	Development of low cost IoT based heart rate monitoring system for telemedicine applications using Arduino	MATERIAL - Pulse sensor, Arduino Uno, Wires and resistors, LED, Potentiometer, Wi-Fi module ESP8266, Push Button SOFTWARE - Arduino, Blynk, Thingspeak EXPECTED OUTCOMES - Heath care monitoring system is very important for every people to gain a healthy life. Be specific, heart rate monitoring system is one of the most major part in health care monitoring system. Therefore, the purpose of this project is to detect the heart rate of the people, sending real time information about heart rate through application. The expected outcome in this case is to obtain accurate bpm of a person and can be the data can be monitored even though they are in far distance.		BEEZ_T32
33	Dr. Vigneswaran Narayanamurthy	BEEZ	Development of smart sensor system for remote water quality monitoring using Arduino	Development of a low cost system monitoring of the water quality in IOT(internet of things).The system consist of several sensors is used to measuring physical and chemical parameters of the water. The parameters such as temperature, PH, flow sensor of the water can be measured. The measured values from the sensors can be processed by the core controller. The Arduino model can be used as a core controller. Finally, the sensor data can be viewed on internet using WI-FI system.		BEEZ_T33
34	IZADORA BINTI MUSTAFFA	BEEZ	Development of a Respiratory Rate Monitoring system for COVID19 Patients using Arduino.	The Covid-19 Patient Monitoring Device with IoT is an intelligent patient monitoring system that uses sensor-based connected networks to automatically monitor the health of patients. Since the Covid-19 virus is targeting a patient's respiratory system, this device is perfect for monitoring. This system uses a Piezoelectronic sensor to determine a patient's respiratory rate per minute. At rest, adults take 12 to 16 breaths per minute, while children take 18 to 30 breaths per minute, according to an article published on Hoppinsmedicine.org. If the Piezoelectronic sensor senses more than the maximum number of breaths per minute in normal conditions, the buzzer will sound. This is to assess the higher carbon dioxide or CO2 concentration in their blood. Since they are having trouble breathing, their carbon dioxide levels may be higher than average, ranging from 22 to 29 mmol/L or 22 to 29 mEq/L. A patient's temperature can be measured by a body temperature above 37.5 degrees Fahrenheit, which suggests a fever. When infected by viruses, the covid-19 patient typically develops a fever. All of this information will be processed in the cloud using the Esp8266 wifi module and visualised on a mobile device using the Blynk app.	PRACTICE ORIENTED	BEEZ_T34
35	IZADORA BINTI MUSTAFFA	BEEZ	Development of an automated fingerprint recognition system for the doorbell using Arduino	Home security is a major concern for home owners especially ladies who are living alone. While there are home security systems that offer visual rendition of a visitor, it poses an inconvenience when one has to run to the door every time a the door bell rings. This project propose an alternative of having recognized fingerprints of family members and friends to be saved as different doorbell chimes, while unrecognized person is assigned to a different door chime. With this element, the homeowner have the convenience to know who is at the door without having to run to the door. This allows the homeowner to choose their visitor and keep their privacy. The system will implement Arduino Mega and fingerprint biometric sensor.	PRACTICE ORIENTED	BEEZ_T35

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BIL	NAMA PENYELIA	PROGRAM	TAJUK	SYNOPSIS	CATEGORY	TITLE CODE
36	IZADORA BINTI MUSTAFFA	BEEZ	Development of an automatic IoT-based sepsis infection detection system for after-surgery patients.	Sepsis is a life-threatening illness caused by your body's response to an infection such as kidney infection and bloodstream infection. Although sepsis is potentially life-threatening, the illness ranges from mild to severe. There's a higher rate of recovery in mild cases. The monitoring of vital parameters of a sepsis patient such as heartbeat rate and body temperature can't be overemphasized. Sepsis infection may occur after the patents reeturns home from the hospital. Therefore, it is important to monitor the patient even when they have returned home. If any of the vital parameters of the patient become abnormal, then the doctor has no way of getting informed about it immediately. The main focus of this system is to notify the patient and doctor through a real-time system.	PRACTICE ORIENTED	BEEZ_T36
37	IZADORA BINTI MUSTAFFA	BEEZ	Development of an IoT-based Heart Palpitations Monitoring for Heart Disease Patients using Arduino.	Continuous heart monitoring is useful for capturing irregular heartbeats that happen infrequently such as heart palpitations. It also provides important information that can help with diagnosis and treatment of underlying heart conditions. Heart palpitations account for 16% of symptoms that cause patients to go their primary care doctor. Heart palpitations are usually harmless. However, in some cases they may indicate a more serious heart condition like a heart rhythm disorder, that requires treatment. This project proposes a real-time system that can detect heart palpitations i.e. rapid heartbeats, fluttering heartbeats or skipped heartbeats using Arduino and pulse sensor. The system then sends urgent notification to the primary health caregiver.	PRACTICE ORIENTED	BEEZ_T37
38	IZADORA BINTI MUSTAFFA	BEEZ	Development of early flood detection IoT-based system using Arduino.	Flood can be devastating leading to property damage and loss of lives. A system which keeps close watch over various natural factors to predict a flood, is proposed to help minimise the damage caused by the flood. The system observes various natural factors, which includes humidity, temperature, water level and flow level. To collect data of mentioned natural factors the system consist of different sensors which collects data for individual parameters. For detecting changes in humidity and temperature the system has a DHT11 Digital Temperature Humidity Sensor. It is a advanced sensor module with consists of resistive humidity and temperature detection components. The water level is always under observation by a float sensor, which work by opening and closing circuits (dry contacts) as water levels rise and fall. It normally rest in the closed position, meaning the circuit is incomplete and no electricity is passing through the wires yet. Once the water level drops below a predetermined point, the circuit completes itself and sends electricity through the completed circuit to trigger an alarm. The flow sensor on the system keeps eye on the flow of water. The water flow sensor consists of a plastic valve body, a water rotor, and a hall-effect sensor. When water flows through the rotor, rotor rolls. Its speed changes with different rate of flow.The system also consist of a HC-SR04 Ultrasonic Range Finder Distance Sensor. The Ultrasonic sensor works on the principle of SONAR and is designed to measure the distance using ultrasonic wave to determine the distance of an object from	PRACTICE ORIENTED	BEEZ_T38
39	KHAIRUL AZHA BIN A AZIZ	BEEZ	Development of Computed Tomography Lung Cancer Analysis Using Image Processing	Develop algorithm for Computed Tomography (CT Scan Image) lung cancer analysis using image processing. Using DICOM image from LIDC dataset, the CT images will be going thru pre-processing and segmentation process. The aim is to analyse lung cancer size from the segmented ROI. The project will be develop using Matlab.	PRACTICE ORIENTED	BEEZ_T39
40	NAJMIAH RADIAH BINTI MOHAMAD	BEEZ	Design of a Highly Selective and Sensitive Glucose Biosensor using Carbon based Material.	Faster advancement of biosensor technologies for point-of-care applications requires the development of devices that are sensitive, portable, reliable and most importantly sufficiently selective to work directly in complex media. The Cr/Au nanofilm for biosensor electrode has been fabricated earlier using DC sputtering. Next, the electrodeposition of pyrrole/MWCNT on Cr/Au nanofilm will be done by using potentiostat. Gllutaraldehyde/glucose oxidase/glucose will be dropped on it with certain molarity to get the targeted redox and sensorgrams results.	PRACTICE ORIENTED	BEEZ_T40
41	NAJMIAH RADIAH BINTI MOHAMAD	BEEZ	Design of Carbon based K-SPR Sensor using Taguchi-GRA Method for Glucose Detection.	Kretschmann-based surface plasmon resonance (K-SPR) sensor utilizing Cr/Au/graphene nanofilms are ideal for label-free biomedical sensing. In this work, Taguchi L9 Orthogonal Array (OA) method will be used to optimize the effects of four control factors and noise factor which are the incident optical wavelength, chromium (Cr) and Au layer thicknesses, graphene layer thicknesses, and their root-mean-square (RMS) surface roughness on the performance of the K-SPR sensor. The control factors were varied for four levels for a novel multi-response SPR sensor optimization for the minimum reflectivity (Rmin), the full-width-at-half-maximum (FWHM) and the sensitivity of glucose detection using simulation.	PRACTICE ORIENTED	BEEZ_T41
42	NURULHALIM BIN HASSIM	BEEZ	Development of Smart Door Unlock System Based on Face Recognition Technology	This is both a hardware and software based work. The student will be working on image processing and control system. A door lock control system will be developed to unlock a door after an approved face is detected. This system will be developed using the Arduino Uno R3, ESP32-CAM and relay Module. The methodology is as follows, the basic flow of the face detection system is an image of the visitor standing in front of the smart door is captured using a camera. It will be digitizeded and simplified. The captured image will be matched with the face that is prestored in the database. If the face is matched, then the door will be unlocked automatically, otherwise it would remain closed. The LED will be on when the door is unlocked and when the captured image cannot match by the face that is stored in the database, the buzzer will turn on, alerting the occupants and neigbours.	PRACTICE ORIENTED	BEEZ_T42

BIL	NAMA PENYELIA	PROGRAM	TAJUK	SYNOPSIS	CATEGORY	TITLE CODE
43	VIGNESWARA RAO A/L GANNAPATHY	BEEZ	Development of a Smart Guard Security System (eSmartGuard) using Near-Field Communication Technology	eSmartGuard system is developed to improve the safety level of the people and assets in universities, companies, or any organization by assisting the security personnel to patrol and performs their duty efficiently. The eSmartGuard NFC tags are installed at multiple points along the patrolling routes with unique Identification (ID) which identify different locations/points or routes. The guards will patrol according to their planned routes and records their arrival by scanning the NFC tagged checkpoints with eSmartGuard reader (Smartphone). The system is connected wirelessly to its cloud database on the internet. In line with current trend in technology where information are accessible at the fingertips. eSmartGuard mobile application provides convenient access to system efficiently. Once the NFC tags are scanned, then the information will be transmitted to cloud database. These information (i.e. location/point scanned, time, date, guard ID) are retrievable remotely via mobile device and computer. The reports are available in the form of duty, weekly, monthly and yearly basis for analysis and continual improvement. An important value added (or feature) of this system is real time incidents detection or emergency events with instant notification to authorized personnel. eSmartGuard system is able to help the organization to provide excellent and efficient implementation of standard operating procedure (SOP) and improve the security of the assets and premises.	INDUSTRY BASED	BEEZ_T43
44	VIGNESWARA RAO A/L GANNAPATHY	BEEZ	Development of an Intelligent Flood Monitoring System using IoT Based Platform	One of the most devastating natural disasters in the world is flooding. Flooding is a great treat towards mankind in many ways especially in damaging agriculture land, residential area and cities with high cost in lives. Flooding also results in a great impact towards the economy of a country. Countries with high frequency of flooding has to spend a big amount of money in flood mitigation plans in afford to help the victims and also to reduce the number in the long run. Most flood mitigation plans is high in cost and only some plans can be implemented base on priority. Costing and safety as the prime concern has engaged many researchers around the world to develop the most efficient ways on monitoring and early flood warning system for the past years. This product highlights one of a possible flood detection and warning system to efficiently monitor critical flood prone locations in real time basis via IoT based platform. An intelligent flood monitoring system is developed to send water level or water rise information from remote flood prone locations where human excess is limited due to distance and weather factors. The ability to receive real time information on water level in flood prone locations empowers both government and private organizations to react to the imminent danger in an effective manner. When the real time flood information received instantly, public safety organizations and other emergency managers can effectively prepare and use their own emergency response plans to minimize potential damage within the limited time of alert.	PRACTICE ORIENTED	BEEZ_T44
45	VIGNESWARA RAO A/L GANNAPATHY	BEEZ	Development of an Intelligent Traffic Incident Notification and Management System for Fast Emergency Response (eAlert) via IoT Based Platform	Its crucial reduce the timespan between the moment the accident occurred and the moment when the medical rescue dispatched to the incident spot. The system needs to be designed to detect severity of accident on the road, notify it instantly to emergency rescue teams with accurate GPS location. The GPS info is then will be used by the rescue team such as ambulance, police and fire station to spot the incident location within the golden hour. This approach significantly improves the survival rate of an accident victim on the road. The quick arrival of the rescue team also helps in ensuring a smooth flow of traffic, especially during peak hour. The student needs to explore the working principle of vehicle telematics systems, air-bag deployment, sensors, crash impact and their severity. The project need to be developed in two phases that consists of modelling/simulation via MATLAB to study the crash impact and severity and also hardware development. The project involves in designing a hardware, software and integration between hardware and software. A control board need to be fabricated to detects the signal from the air-bag system and or any other sensors. The system should be able to collect necessary information from the vehicle, without passenger input, to provide to emergency responders via IoT based platforms so they could quickly locate and reach the scene of the crash.	PRACTICE ORIENTED	BEEZ_T45
46	VIGNESWARA RAO A/L GANNAPATHY	BEEZ	Development of Contact Tracing & Social Distancing System for COVID-19 Prevention and Control using GPS and Magnetometer Devices using IoT Based Platform	As a result of the worldwide transmission, coronavirus disease 2019 (COVID-19) has evolved into an unprecedented pandemic. Social distancing means keeping a safe distance (i.e., > 6 feet or 2 meters) between individuals, which is a very effective intervention for preventing infectious diseases such as coronavirus and influenza virus that spread through droplets while coughing and talking. In addition, contact tracing is also a good way to slow down the spread of infectious diseases like COVID-19. Through contact tracing, the close contacts, who did not keep social distancing, are found and required for treatment or self-quarantine to prevent further spread of virus. Conventionally, those close contacts are provided by the infected individual, which is hard to cover all close contacts and may have omissions. This project is expected to implement IoT devices such as GPS, microphone, and magnetometer that provide a more accurate and convenient way for social distancing and contact tracing. GPS is a positioning system that gives the coordinates of users. The most intuitive method is using GPS to track the trajectories of users and determine the contact distance based on coordinates. In addition, this project also is expected to use the magnetometer which exploits linear correlations of smartphone magnetometer readings to estimate distance between two phones to detects the events of close human contact.	PRACTICE ORIENTED	BEEZ_T46
47	VIGNESWARA RAO A/L GANNAPATHY	BEEZ	Development of Quarantine Monitoring System for COVID-19 Prevention and Control using IoT Based Platform	As a result of the worldwide transmission, coronavirus disease 2019 (COVID-19) has evolved into an unprecedented pandemic. Quarantine is used to isolate the individuals, who have been diagnosed with COVID-19 disease or have been exposed to coronavirus, which is implemented to prevent the spread of COVID-19. In addition to keeping away from others, their health needs to be monitored for further assessment and possible treatment. Conventional procedures of quarantine monitoring, such as vital signs monitoring or activity monitoring, are implemented manually by medical staff. However, the pandemic brings acute shortages of medical staff and facilities. And this contact monitoring also increases the risk of infections among nursing staff. Thus, IOT based quarantine monitoring needs to be implemented in home settings during the pandemic. This project will be focused on IoT based enable remote smart healthcare system, which achieves automatic human activity tracking and real-time health monitoring in home settings. Due to its ubiquitous sensing ability and seamless connectivity, the IoT platform is preferred to be utilized to prevent and control new infectious diseases. IoT technology seamlessly integrates them into the online network and enable them to operate automatically without manual efforts. An IoT framework is used for monitoring and identify COVID-19 subjects during the quarantine. Specifically, several biosensors are deployed to detect the COVID-19 symptoms of subjects and these data would be delivered to quarantine center for further assessment and, in the cloud data center, machine learning algorithm are used to build a model for COVID 19 identification.	PRACTICE ORIENTED	BEEZ_T47
48	WAN HASZERILA WAN HASSAN	BEEZ	Design of a Highly Selective and Sensitive Urea Biosensor using Organic Conducting Material.	Faster advancement of biosensor technologies for point-of-care applications requires the development of devices that are sensitive, portable, reliable and most importantly sufficiently selective to work directly in complex media. The Cr/Au nanofilm for biosensor electrode has been fabricated earlier using DC sputtering. Next, the electrodeposition of pyrrole or organic conducting material on Cr/Au nanofilm will be analyzed by using COMSOL software and potentiostat. Urea/urease will be dropped on it with certain molarity to get the targeted redox and sensorgrams results.	PRACTICE ORIENTED	BEEZ_T48