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

BIL	NAMA PENYELIA	PROGRAM	TAJUK	SYNOPSIS	CATEGORY	TITLE CODE
1	AB. WAFI BIN AB. AZIZ	BEEA	Development of automated water replacer system for an aquarium using Arduino and IOT	The project to help consumer to replace water in aquarium automatically when the water is dirty. Use arduino as controller, level and ph sensor as input and valve as output. Phone app is use to manually replace the water and to on/off the system.	PRACTICE ORIENTED	BEEA_T01
2	AB. WAFI BIN AB. AZIZ	BEEA	Development of an IOT Based Smart Pet Cage	This project is about adding some features to pet cage such as auto pet feeder, auto shit cleaner and monitoring status. All the features can be access using android application. It can help pet owner to monitor their pet while away from home or vacation.	PRACTICE ORIENTED	BEEA_T02
3	AB. WAFI BIN AB. AZIZ	BEEA	Development of Smart Rubbish Bin using Arduino	The smart rubbish bin has capability to compress rubbish to allocate more space. DC motor is use to compress the rubbish and solar panel with battery as the power supply to the system.	PRACTICE ORIENTED	BEEA_T03
4	AB. WAFI BIN AB. AZIZ	BEEA	Development of an egg incubator with monitoring system using IOT	The temperature of egg incubator can be set and monitor using android application.	INDUSTRY BASED	BEEA_T04
5	AB. WAFI BIN AB. AZIZ	BEEA	Estimating the weight of mangoes using image processing and analysis techniques	This project provides a method that uses image processing and measurement to calculate the weight of mangoes. The PCI software for computation was used to process and interpret mango images acquired from the method of image acquisition. After data analysis and evaluating techniques, the programme counted the amount of mango area pixels in the captured image. Using statistical regression techniques, the relationship between mango pixels and mango weights was analysed.	INDUSTRY BASED	BEEA_T05
6	AHMAD IDIL BIN ABDUL RAHMAN	BEEA	DEVELOPMENT OF VISION- BASED SYSTEM FOR OBJECT DETECTION AND SORTING APPLICATION	The aim of this project is to develop an automation system consist of product inspection using machine vision technique. Student will develop hardware station for sorting process integrate with classification algorithm using Matlab and computer.	PRACTICE ORIENTED	BEEA_T06
7	AHMAD IDIL BIN ABDUL RAHMAN	BEEA	I-SAJADAH WITH AUTOMATIC LOCATION TRACKER USING GPS	The aim of this project is to design and develop a smart prayer mat that is capable to track prayer time according to location tracked by GPS navigation, using microcontroller programming and real time clock. This tracking prayer time will be integrate with two previous project which is Ingenious Prayer Mat With Smart Rakaah Notification Devide and I-Sajadah with Smart Monitoring System.	PRACTICE ORIENTED	BEEA_T07
8	AHMAD IDIL BIN ABDUL RAHMAN	BEEA	DEVELOPMENT OF IOT BASED LIGHTNING DETECTION SYSTEM USING RETURN STROKE IDENTIFICATION METHOD	The aim of this project is to identify cloud and ground flash of the lightning strikes integrate with IOT based monitoring for lightning detection system. Student will develop algorithm for return stroke identification and related hardware configuration for IOT based application.	PRACTICE ORIENTED	BEEA_T08
9	AHMAD ZUBIR BIN JAMIL	BEEA	Development of IoT Based Motion Detector in security	Motion Sensor usually known as the PIR sensor is used in many kinds of Security Alarm Systems and Motion Detector systems. Instead of emitting infrared signals, it absorbs IR signals and that's why it is called PIR (Passive Infrared) Sensor. Every object emits heat in the form of IR rays, so whenever the PIR sensor detects any change in heat, its output pin becomes HIGH. The key components of the PIR sensor are the Pyroelectric sensor and Motion Detector . Motion detector takes the data from the sensor and measures the output pin HIGH or LOW accordingly.	PRACTICE ORIENTED	BEEA_T09
10	AHMAD ZUBIR BIN JAMIL	BEEA	Development of Temperature and Humidity Data Logging on SD Card using Arduino	Data is a crucial resource for any kind of analysis and forecasting. It is always needed to create any information or stats. There are a lot of online and offline platforms available to log data and we have used many IoT based platforms and webservers to store and visualize data. Here we use the most popular offline way to store data which is a SD card. In this project, we will use Arduino Uno to log the temperature and humidity data on the SD card. Here Arduino Uno collects the temperature and humidity values from sensor and stores these values on an SD Card. The data file saved in the SD card can be easily opened as a text file for further analyses	PRACTICE ORIENTED	BEEA_T10
11	AHMAD ZUBIR BIN JAMIL	BEEA	IoT-based Restaurant Menu Ordering System	IoT based food ordering systems are replacing the traditional food ordering system in restaurants. Instead of using paper-based menu cards, Restaurants are now installing touch screen displays on tables, so the customers can directly select the food items from the screen and order the food easily.	PRACTICE ORIENTED	BEEA_T11
12	AHMAD ZUBIR BIN JAMIL	BEEA	IoT-based Flood Monitoring System	Flood is a major known natural disaster that causes a huge amount of loss to the environment and living beings. So in these conditions, it is most crucial to get the emergency alerts of water level status at river beds in different conditions. In this project, the objective is to sense the water levels at river beds and check whether they are at a normal condition or not. If they reach beyond the limit, then it alerts the people through LED indications as well as through internet application. Here we are using an ultrasonic sensor to sense the river levels and a NodeMCU ESP8266 to process these data. The data will be uploaded to ThingSpeak IoT cloud, using which the river levels can be graphically monitored from anywhere in the world.	PRACTICE ORIENTED	BEEA_T12
13	AMINURRASHID BIN NOORDIN	BEEA	Design and Development of underwater Remote Operative Vehicle (ROV)	Underwater vehicles are vital to port and harbor security, scientific exploration, underwater cleaning, etc. Due to underwater currents, the ROV always unbalance during hovering underwater. The objective of this project is to design and develop a small scale ROV that can perform a specific task such as ROV IRC IIUM 2019 robotic competition. Whereas in this project, student needs to apply the sensor fusion algorithm for ROV stabilization during hovering underwater. The designed ROV should have six small brushless dc motor, a gripper, a microcontroller to control ROV, IMU, and a communication device to communicate between ROV and smartphone or gamepad. The propeller, gripper, and body can be created using abs material. At the end of the project, an ROV with a gripper is expected to perform a task as set out in IRC2019 rules.	PRACTICE ORIENTED	BEEA_T13
14	AMINURRASHID BIN NOORDIN	BEEA	Development of Mobile robot for swarm robotics applications	Swarm robotics is an approach to the coordination of multiple robots as a system that consists of large numbers of mostly simple physical robots. The objectives of this project are to design and develop at least two small scale mobile robots for swarm robotics applications and to apply at least two cooperation operations such as wall following algorithms at specific distances and pattern formations. The robot must consist of two differential drive wheels, a controller with a motor driver, sensors, and wireless communications. The controller must be able to compile a phyton language platform.	PRACTICE ORIENTED	BEEA_T14
15	AMINURRASHID BIN NOORDIN	BEEA	Development of Mobile robot for surface leveling measurement	Currently, Internal Building Assessment by CIDB is conducted manually. With advanced of technology this assessment can be automated using robotic and sensor technology. For instance, an inclinometer can be used to assess the ground inclination of the building. Utilized mobile robot, the assessment process can be faster and overcome human fatigue. Also with robotic technology more surface can be assessing instead of few sampling areas when conduct manually. In this project, student needs to design mobile robot (microcontroller, 2 wheels, obstacle avoidance-infra-red/ultrasonic) with level sensor that can map building floor while generate inclination report. It hopes, this proposed system can comply partial of CIS:2014 standard, provides better inspection accuracy, and less time consuming when compared to manual assessments.	INDUSTRY BASED	BEEA_T15

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16	AMINURRASHID BIN NOORDIN	BEEA	Development of V-Box Sensor for Automotive Application	This V-box comprise with 3 camera (wireless/wired), IMU and GPS. This v-box will be DAQ for automotive to get vehicle speed (IMU), lateral acceleration (IMU), travel distance travel (GPS), and line trajectory base on image obtained from IMU and camera. Linked to smart device or PC for information display and data analysis will be vital in this project.	PRACTICE ORIENTED	BEEA_T16
17	AMINURRASHID BIN NOORDIN	BEEA	Development of wareable health monitoring device via Smartphone	Industrial revolution produces numerous small-scale sensors (MEMs) that support medical applications. In the latest trend, most people prefer to have hand-held or wearable device to continuously track their healthy before it become worst. Therefore, this project aims to create prototype of wearable health monitoring system focus on ECG, SpO2, heart rate monitoring. This prototype will linkup to smartphone wirelessly via Bluetooth to record and display the result.	PRACTICE ORIENTED	BEEA_T17
18	AMINURRASHID BIN NOORDIN	BEEA	Real time weather station monitoring system for drone docking system	This docking system includes a 2-axis centralise mechanism, temperature and humidity control, a weather station (rain and wind), a security camera and operated by IoT technology. When a quadrotor drone lands on the docking system, it is oriented using a 2-axis arm mechanism to its charging station. The Interface will reveal all of the statuses, such as drone in the docking, the drone is charging, etc. This project will use a parrot rolling spider as the drone. Two stepper- motors for the centralised mechanism. Sensors such as humidity, temperature, rain, and a wind barometer will be added. Besides, a camera for survilliance.	PRACTICE ORIENTED	BEEA_T18
19	AMINURRASHID BIN NOORDIN	BEEA	Development of 2-axis mechanism for Drone Docking System	This docking system includes a 2-axis centralise mechanism, temperature and humidity control, a weather station (rain and wind), a security camera and operated by IoT technology. When a quadrotor drone lands on the docking system, it is oriented using a 2-axis arm mechanism to its charging station. The Interface will reveal all of the statuses, such as drone in the docking, the drone is charging, etc. This project will use a parrot rolling spider as the drone. Two stepper- motors for the centralised mechanism. Sensors such as humidity, temperature, rain, and a wind barometer will be added. Besides, a camera for survilliance.	INDUSTRY BASED	BEEA_T19
20	AMINURRASHID BIN NOORDIN	BEEA	Development of Innovative Multifunctional Face Shield (MyShield)	In this project, a new and innovative multifunctional face shield (MyShield) is proposed for the use both during and post pandemic situation. MyShield has dual functionality, first as a personal protective equipment (PPE) to guard user against infection during close contact. At the same time, MyShield is also able to function as a diagnostic tool to detect human body temperature in real time condition, by integrating the face shield design with simple yet accurate infrared thermal sensor. This feature helps face shield wearers to perform concurrent screening task at the same time, hence increase their safety confidence while working. Apart from its multifunctionality, MyShield is also designed for better ergonomic characteristics compared to conventional face shield such as reusable (by normal sanitization methods), adjustable size, simple attachment method, and lightweight. Furthermore, MyShield also incorporates anti-microbial element which further add more safety to user. All these features especially the integrated prevention-detection function is very advantages to MyShield user as an indispensable tool especially in pandemic situation requiring all critical functions to be available and use in a single equipment. MyShield versatility and innovative features can help to combat resurgence of the pandemic compared to conventional face shield not only to frontliners, but also to worker in other areas working in close contact with each other such as education, manufacturing, food and delivery services, and agriculture.	PRACTICE ORIENTED	BEEA_T20
21	AMINURRASHID BIN NOORDIN	BEEA	Development of blind-spots indicator and alert system for drivers in curve roads in order to minimize the crashes and accidents using Arduino	Accidents can occur on roads depending on the terrain on which the road is built. For example, on steep roads on hillsides, easily foggy and so on. Hence, utilize IOT technologies, information such as foggy, heavy-rain, landslide, blind-spot cornering can be broadcast to alert driver to be prepared hazard or anything situation that can happened. In this project, vibration, humidity, tilt sensors and few others sensor can be utilized to broadcast information at potential hazard may happened on the road to driver will be developed.	PRACTICE ORIENTED	BEEA_T21
22	ARMAN HADI BIN AZAHAR	BEEA	Automatic vehicle accident detection and rescue system	Usually the accident victim dead because of the late information to the ambulance. The late information will cause the victim received late treatment. Therefore, an automatic vehicle accident detection and rescue system will be developed to send immediate notification to the ambulance, police and fire station. This development will be integrate GPS and IoT based for the real time situation.	PRACTICE ORIENTED	BEEA_T22
23	DR. ALIZA BINTI CHE AMRAN	BEEA	SMART CLAMP METER FOR ENERGY MONITORING PURPOSES	In this project, the clamp meter is redesigned to integrate it with an Arduino/ESP32 microcontroller to monitor the energy consumption via online based on the IoT concept. If this working concept is proven, this prototype will have a good potential for commercialization in Malaysia. The measured data can be observed, collected and analysed using predictive analysis and advanced method to significant data in the form of reports, graphs and charts. The data can be displayed through a smartphone device and can be stored in a database. These data are important for monitoring and troubleshooting purposes in the industries. Student has to be able to develop one and run the experiments at site with real machines/motors to observe its ability to capture current trend. One (1) BEEI student will focus on data collection and data analysis and one (1) BEEA student will focus on the online application. Both responsible for ONE hardware development and will work on common platform.	INDUSTRY BASED	BEEA_T23

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24	DR. ALIZA BINTI CHE AMRAN	BEEA	DEVELOPMENT OF WAITER ROBOT : MAPPING FOR NAVIGATION	"Since the pandemic COVID -1 break, our government has start to instruct the people to follow the standard operating procedure (SOP) for prevention COVID-19 such as applying social distance for one meter, sanitize your hand frequently etc. One of the places that a lot of people will gather are restaurants. Since waiters who are serving food at restaurant will be always having closed contact with the customers, they will be the individual that can be categories as who had high possibility to get an infection. Restaurant owners had started to use service robot or waiter robot as an alternative in aiding them to serve food for the customers. The restaurant like Kimbo Restaurant & Café at Egypt, Rong Heng Seafood Restaurant at Singapore, and CH Premiere Restaurant at Kuching, Sarawak are some of the examples of the application of waiter robot. A prototype of a Contactless Waiter Robot will be developed with purposed to serve in the restaurant. It can help the owner to do the jobs like received order from customer and send the meal and drink to the correct customers table contactless. Robot Operating System (ROS) framework will be used to develop an efficient and more flexible autonomous waiter robot system. By using ROS, path planning and navigation in restaurant can be done efficiently by using map of the restaurant environment generated by SLAM algorithm and position of robot is determined and localization to the designed location with using Adaptive Monte-Carlo (AMCL) algorithm in ROS. Simulation and experiment will be done to study the effectiveness of contactless waiter robot system to do the assigned tasks. This project embarks on the following objectives: (1) To develop the body /mapping / navigation system for the robot to serve in designated environment. (2) To analyse the design/prototype/navigation system performance. Scope Size for robot 350mm x 350mm x 800mm (use Turtlebot 3) Only have one tray to serve the food. Navigate in designated/controlled restaurant environment Focus only on controller design (one BEEA student focus on mapping and one BEEA student focus on navigation) Example of robot Lucy at Rong Heng Restaurant Singapore https://www.straitstimes.com/lifestyle/food/robot-lucy-at-your-service-at-newly-opened-rong-heng-seafood Goddess 1, Goddess 2, Goddess 3 and the cute little Lolita at CH Premiere Restaurant at Kuching, Sarawak https://www.nst.com.my/news/2016/12/199273/kuching-restaurant-serves-chinese-favourites-robots-side Mozo at Kimbo Restaurant & Café Egypt http://www.xinhuanet.com/english/2020-07/29/c_139249491.htm Pudu robotics https://pudurobotics.com/ads/pudubot/en?gclid=CjwKCAiAudD_BRBXEiwAudakX-a_zuTHkCJkCczk4bSTzs2_6RJHN9Xa8SG45VyREclabXB07JJa5xoC5YlQAvD_BwE"	INDUSTRY BASED	BEEA_T24
25	DR. ALIZA BINTI CHE AMRAN	BEEA	DEVELOPMENT OF WAITER ROBOT : NAVIGATING ROBOT IN CONTROLLED ENVIRONMENT	"Since the pandemic COVID -1 break, our government has start to instruct the people to follow the standard operating procedure (SOP) for prevention COVID-19 such as applying social distance for one meter, sanitize your hand frequently etc. One of the places that a lot of people will gather are restaurants. Since waiters who are serving food at restaurant will be always having closed contact with the customers, they will be the individual that can be categories as who had high possibility to get an infection. Restaurant owners had started to use service robot or waiter robot as an alternative in aiding them to serve food for the customers. The restaurant like Kimbo Restaurant & Café at Egypt, Rong Heng Seafood Restaurant at Singapore, and CH Premiere Restaurant at Kuching, Sarawak are some of the examples of the application of waiter robot. A prototype of a Contactless Waiter Robot will be developed with purposed to serve in the restaurant. It can help the owner to do the jobs like received order from customer and send the meal and drink to the correct customers table contactless. Robot Operating System (ROS) framework will be used to develop an efficient and more flexible autonomous waiter robot system. By using ROS, path planning and navigation in restaurant can be done efficiently by using map of the restaurant environment generated by SLAM algorithm and â€positionâ€ of robot is determined and localization to the designed location with using Adaptive Monte-Carlo (AMCL) algorithm in ROS. Simulation and experiment will be done to study the effectiveness of contactless waiter robot system to do the assigned tasks. This project embarks on the following objectives: (1) To develop the body /mapping / navigation system for the robot to serve in designated environment. (2) To analyse the design/prototype/navigation system performance. Scope Size for robot 350mm x 350mm x 800mm (use Turtlebot 3) Only have one tray to serve the food. Navigate in designated/controlled restaurant environment Focus only on controller design (one BEEA student focus on mapping and one BEEA student focus on navigation) Example of robot Lucy at Rong Heng Restaurant Singapore https://www.straitstimes.com/lifestyle/food/robot-lucy-at-your-service-at-newly-opened-rong-heng-seafood Goddess 1, Goddess 2, Goddess 3 and the cute little Lolita at CH Premiere Restaurant at Kuching, Sarawak https://www.nst.com.my/news/2016/12/199273/kuching-restaurant-serves-chinese-favourites-robots-side Mozo at Kimbo Restaurant & Café Egypt http://www.xinhuanet.com/english/2020-07/29/c_139249491.htm Pudu robotics https://pudurobotics.com/ads/pudubot/en?gclid=CjwKCAiAudD_BRBXEiwAudakX-a_zuTHkCJkCczk4bSTzs2_6RJHN9Xa8SG45VyREclabXB07JJa5xoC5YlQAvD_BwE"	INDUSTRY BASED	BEEA_T25
26	DR. ALIZA BINTI CHE AMRAN	BEEA	TRAJECTORY PATH GENERATION OF ROBOTIC MANIPULATOR FOR TRIMMING PROCESS OF CARBON FIBER REINFORCED POLYMER (CFRP) BASED PRODUCT	"The focus of this research is to automate the trimming process of Carbon fibre reinforced polymer (CFRP) based product. Trimming is a process of cutting off unwanted parts. It improves the composite in term of appearance and surface finish for installation. Until now, the trimming process of this product is done manually by workers. The objective of this project is to identify trajectory path of the manipulator end effector for trimming process. The point to point method is one of the common methods that can be used. Using this method, the manipulator must move from initial to the final joint configuration in a time frame given. The simulation results will be analyse based on standard specification to achieve accurate trajectory path. ROBOT TO BE PROGRAMMED: UR10 (6 DOF) SOFTWARE DOWNLOAD: https://www.coppeliarobotics.com/index.html"	INDUSTRY BASED	BEEA_T26
27	DR. MOHD BADRIL BIN NOR SHAH	BEEA	ELECTRICAL CONTROL USING POWERLINE COMMUNICATION TECHNOLOGY	Traditional electrical control require extensive wiring especially when the system have a lot of control points and switches. This circumstance can result in high cost in wiring and maintenance. Powerline communication (PLC) technology can overcome this problem by controlling multiple point using two wires only: live and neutral wires, where all the points and switches are tapped to the wires. PLC transmitter generates a high frequency signal and be modulated into the powerline. The PLC receiver will receive recognise the high frequency signal and activate the electrical point such that the electrical power can be delivered to the load. A few PLC devices (transmitters and receivers) will be developed by using Arduino microcontroller and oscillator circuit. To verity its efficacy, the developed device will be tested at home electrical system.	PRACTICE ORIENTED	BEEA_T27
28	DR. SAHAZATI BINTI MD. ROZALI	BEEA	Development of CO Detector by using IOT Technology	Since there are many cases on sudden death in the car due to the CO leakage, this project proposed to develop an equipment that can detect the gas leakage and give an indicator to the user.	PRACTICE ORIENTED	BEEA_T28

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29	DR. SAHAZATI BINTI MD. ROZALI	BEEA	Implementation of Distributed Control System in Water Treatment Plant System	This project propose the implementation of Distributed Control System in small scale of water treatment plant system.	PRACTICE ORIENTED	BEEA_T29
30	DR. SAHAZATI BINTI MD. ROZALI	BEEA	Development of PID Controller for Conveyer Belt System with Different Tuning Method	PID Controller for conveyer belt system needs to be designed and the analysis on different tuning method is required to observe the effectiveness of the designed controller on the system.	PRACTICE ORIENTED	BEEA_T30
31	DR. SAHAZATI BINTI MD. ROZALI	BEEA	Controller Design for A Prototype of Water Treatment Plant by Using PLC	This project require student to design a controller by using PLC on the small scale of water treatment plant system.	PRACTICE ORIENTED	BEEA_T31
32	DR. SAHAZATI BINTI MD. ROZALI	BEEA	Development of an automated CNC engraving router system	The student is required to design and develop automated CNC engraving router system by using any suitable method .	PRACTICE ORIENTED	BEEA_T32
33	DR. SYED NAJIB BIN SYED SALIM	BEEA	Liquid Level controller design with IoT-based Monitoring System	Liquid level monitoring system designed in a way that users can remotely check the level of the liquid. It has vast applications in the industrial sector where the user needs to monitor the level of liquid, whether it is below the mark of overflowing. The main objective of the project is to manage the liquid level using an appropriate control technique. This project involves the use of a microcontroller as a tool to implement the controller. Besides, it also involves sensors placed over the containers to detect the liquid level and compare it with the container's depth. For the purpose to monitor the status of the liquid level, an IoT monitoring system is then employed using suitable Apps. Thus, this can helps to prevent the wastage of water by informing about the liquid levels instantly through hand phone.	PRACTICE ORIENTED	BEEA_T33
34	DR. SYED NAJIB BIN SYED SALIM	BEEA	CONTROL DESIGN OF A LINE FOLLOWER ROBOT WITH IOT-BASED MONITORING SYSTEM	Line follower robot is one kind of autonomous robot which follows a line until that line exists. It widely used in many industries especially in carrying heavy and risky products inside a factory like radioactive which is very much risky for the human. The purpose of this project is to build a Line Follower Robot with PID control. This project involves the use of a microcontroller as a tool to implement the controller. Besides, it also involves several sensors to detect the obstacle. For the purpose to monitor the current status of the activities, an IoT monitoring system is then will employed. This can helps to prevent the human from entering the area while the activities are in progress.	PRACTICE ORIENTED	BEEA_T34
35	DR. SYED NAJIB BIN SYED SALIM	BEEA	IoT-based Social Distancing Alarm Monitoring system	Maintaining the right gap for social or physical distancing is not always feasible especially while going to shopping in the closed places. This proposed project will focus on the investigation of an appropriate method that can be used to manage this situation so that it can help to reduce the spread of COVID-19 infection. This project involves the use of Arduino as a main component that will connect with several appropriate sensors and a few other components. These sensors will be fitted to the vest with suitable arrangements. Next, the use of IoT can help the system to be monitored by sending the signal to the operator that responsible to control this situation.	PRACTICE ORIENTED	BEEA_T35
36	DR. SYED NAJIB BIN SYED SALIM	BEEA	Fire Extinguishing Robot control design with IOT-based Monitoring Temperature System	Fire is like a double-edged sword. Discovery of fire stands as a milestone in the history of mankind. Fire fighters try their best to fight and extinguish fires when in need. But for cases in the house, it is observed that if the fire can be extinguished at an early stage, many major accidents can be averted. The aim here is to build a fire extinguishing robot that can help in-case fire breaks out. This project involve the use of embedded controller to control the position of the robot that involves the use of dc motor with encoder and suitable sensors to measure the position and detect the fire, respectively. Besides, a DC water pump is used for the purpose of extinguishing fire. For the purpose to monitor the current status of the activities, an IoT monitoring system is then will employed to prevent the robot from entering the area that can destroy itself by continuously sending the temperature of the working area.	PRACTICE ORIENTED	BEEA_T36
37	DR. SYED NAJIB BIN SYED SALIM	BEEA	Development of brainwave pattern identification system for brain controlled robot using Brainsense	The project is to identified the pattern of the brainwave in the left n right direction and identified the pattern of the brainwave in the forward n backward direction. It is using brainsense based on robot and matlab.	PRACTICE ORIENTED	BEEA_T37
38	MASLAN BIN ZAINON	BEEA	Development of an IoT-based Industrial Automation System using Raspberry Pi	An internet based industrial automation system that allows a single industry operator to control industrial appliances with ease using Raspberry Pi and IoT technology. The proposed system allows for automation of industrial loads to achieve automation over the internet. An IoT open-source platform for the web server interface and Raspberry Pi are used to process and run the circuit loads. User is allowed to send commands for machine/load switching from anywhere in the world over the internet. The Raspberry Pi processor will capture these commands by the internet over a Wi-Fi connection. It processes the received data to extract user's commands. The loads will be activated and deactivated based on the received commands as to achieve the user's desired output. After getting the commands, it will be displayed on an LCD display.	INDUSTRY BASED	BEEA_T38
39	MASLAN BIN ZAINON	BEEA	Development of an Accident Avoiding System with Crash Detection and GPS Notification	The system acts as accident avoidance and detection system that gathers all the required information and sends it to the close person or anyone whose number the driver has assigned. In this project, Arduino is utilized for controlling the entire procedures with a GPS Receiver and GSM module. GPS Receiver is utilized for identifying directions of the vehicle whilst GSM module is utilized for sending an SMS with the directions and the connection to Google Map. An accelerometer can be used in a car alarm application with the goal that risky driving can be distinguished. It can be utilized as a crash or rollover identifier of the vehicle amid and after a crash. With signals from an accelerometer, a severe accident can be recognized. When a vehicle meets with an accident, the sensor will immediately detect the signal and the Arduino microcontroller sends it to a GSM module. The GSM module begins transmitting the accident data along with the exact position of the victim through Google Maps' link. The victim's registered close contact can immediately trace his/her exact location through GPS Modem and can immediately provide help.	INDUSTRY BASED	BEEA_T39
40	MASLAN BIN ZAINON	BEEA	Development of an IoT-based Health Monitoring System for Covid-19 Patients in Quarantine	An IoT-based health monitor system that allows for remotely monitoring of multiple Covid-19 patients over the internet is proposed. The system monitors patients' heartbeat, temperature and blood pressure using a heartbeat sensor, temperature sensor and BP sensor, respectively. The system transmits the data over the internet using Wi-Fi transmission by connecting it to a Wi-Fi internet connection. The data is transmitted and received over an IoT open-source web server platform and displayed remotely. The entire system is run by a microcontroller-based circuitry. If any anomaly is detected in the patients' health or if the patients press the emergency help button on the IoT device, an alert will be sent over IoT remotely. The system is mounted at the patients' bedside and constantly transmits their health data over the internet so that doctors can monitor multiple patients remotely and attend the desired patient urgently when needed.	INDUSTRY BASED	BEEA_T40

BIL	NAMA PENYELIA	PROGRAM	TAJUK	SYNOPSIS	CATEGORY	TITLE CODE
41	MASLAN BIN ZAINON	BEEA	Development of an IoT-based Sorting System for Colour-based Products	Colour-based object sorting has wide usage in fruit sorting as well as candy sorting industries. This system puts forward a mechanism to detect colour and sort items through image processing. Once identified a mechanism is used to sort the products into particular bins baskets. The system uses Raspberry Pi connected to a controller circuit to achieve this task. The controller circuit consists of a camera attached to it that detects the colour of a small object in front of it. A motor is used to feed an object to the camera chamber. As soon as the colour is detected, a signal is sent to the sorter mechanism which uses a motor to position the sorting tube towards the respective section. A feeder is then used to push the object towards the tubs so that it gets sorted and the next object is pulled in by the feeder. The action details are sent to an IoT web server using an open-source platform to keep track of the number of objects sorted in each section.	INDUSTRY BASED	BEEA_T41
42	MASLAN BIN ZAINON	BEEA	Development of an IoT-based Smart Asset Tracking System	The GPS systems are today's most well-known location tracking systems but these systems are not capable of pinpointing the exact locations or locations of an entity within a building or on a particular floor or room. Thus, a smart asset tracking system is proposed that allows us to track locations of objects, goods and personnel within a building or any facility. The proposed system makes use of RF and IoT technologies. It has the capability to pinpoint the location of any entity to its exact room it is currently located in. The system uses mini RF circuits to be used as tracking devices and microcontroller-based tracking circuits to track those RF circuits. The tracker circuits are battery-powered circuits to be mounted on objects/entities. The monitoring circuits are to be placed in individual rooms. As soon as any tracker objects entered any room and the tracker circuits within a certain range of the monitoring circuit for the room, the monitoring system will transmit the location of the tracker circuit to an online system, whereby an open-source IoT web server platform is used to handle the IoT tracking part. The transmitted data is then displayed by the IoT platform to pinpoint the location of the particular object/entity is located in.	INDUSTRY BASED	BEEA_T42
43	MASLAN BIN ZAINON	BEEA	Development of a Microcontroller-based Automatic Billing Mall Shopping Cart System	The system consist of a RFID reader which is controlled by a microcontroller. Whenever the shopper puts any product in a shopping cart, it is detected by the RFID module and displayed on a LCD along with the price of the product. As the shopper adds more products inside the shopping cart, they continue to be detected by the module and the total price will be increased. In case if customer changes his/her mind and does not want some of the products added, he/she can remove them and the price will be deducted automatically. At the end of shopping, the shoppers required to press a button, which when it is pressed, it adds all the prices and displays the total bill to be paid. At the checkout, the cashier can verify the price and the shopper can proceed with the payment as usual.	PRACTICE ORIENTED	BEEA_T43
44	MASLAN BIN ZAINON	BEEA	Development of a Microcontroller-based Mind-Controlled Wheelchair for Amyotrophic Lateral Sclerosis (ALS) Patients	ALS patients are diagnosed with a type of disease that attacks the nerve cells responsible for controlling voluntary muscles, which leads to an impact on the ability of movement. This project consists of electrodes that able to receive signals from a human brain via an electroencephalogram (EEG) headband, which is processed by a microcontroller and send them to operate a wheelchair. Basically, the system does not read human thoughts and is not able to see through a human's mind but instead, it uses electrical impulses generated from the brain's neurons to control the system's outputs. In this project, a wheelchair prototype consists of servo motors are used to replace its wheels for manoeuvrability, and the prototype is linked to a wirelessly controlled Arduino microcontroller. This method can be considered as a non-invasive technique. Conclusively, this project is about controlling the movements of the wheelchair's servo motors through a microcontroller-based EEG headband. It is hopeful to help ALS or mobility disable patients to easily move around and thus allowing them to lead to a more independent life.	INDUSTRY BASED	BEEA_T44
45	MASLAN BIN ZAINON	BEEA	Development of an IoT-based Tracking and Safety Helmet for Mining Workers	Mining is indispensable to the creation of goods, infrastructure and services which enhance the quality of their lives. Working in the earth presents many different security and health dangers. Frequently the underground environment is shaky or unpleasant. The mines that are deeper, the more dangerous it could be to be running jobs. There is an oxygen leak that is restricted, and there are challenges related to leaving a mine if a crisis happens. This project proposes a mining tracking as well as a safety system for the mining industry using a microcontroller-based circuit attached on the worker helmet. The RF-based circuitry is used to detect workers moving through the entire mining site. The helmet is integrated with an RF-based based tracking system, which in coordination with the tracker, RF systems help to provide data over IoT. The system makes use of a microcontroller-based RF tracker circuitry to receive the data transmitted by the worker helmet nodes. This helps map the current location of the workers through the entire mining site. Moreover, each worker helmet circuit is integrated with a panic/emergency button that when it is pressed, it shows an emergency sign over the IoT web interface about the worker's emergency. This can be used for any emergencies such as toxic gas inhalation, cave-ins, physical injury, etc. Thus, the system ensures mining worker safety via IoT technology.	PRACTICE ORIENTED	BEEA_T45
46	MASLAN BIN ZAINON	BEEA	Development of a Microcontroller-based Factory Worker Alcohol Detector with Automatic Machine Shutdown System using GSM	Factories are machine critical industries and run on two major resources; machines and labour. Machines need to be operated carefully since one mistake may lead to injuries or loss of life and business. Large industrial machines that run on high power are even critical since a mistake in operating it may lead to huge losses. This project proposes an automated system to detect alcohol consumption of factory workers and machine shutdown with an alerting system. Consumption of alcohol affects the mental state of a person. Thus, a person who operates heavy machines under the influence of alcohol is likely to hurt himself as well as the machine. Thus, this project uses a microcontroller-based circuit that consists of an alcohol sensor interfaced with it, a GSM module/modem and an LCD display. The entire system is powered by a 12V supply. The alcohol sensor is constantly running to check if the worker is drunk. It can sense the alcohol level and outputs a voltage according to the alcohol sensed. The microcontroller interfaced to it reads the value and if it is found to be above the permissible range then it goes into an alerting mode. Once it enters the alerting mode, the microcontroller stops the machine operated by the worker and displays the status of the alcohol alert on an LCD display and sounds a buzzer to indicate the same alert. The system needs to send a report to the responsible officer/owner of the industry to be informed about the incident by automatically sending an SMS message through the GSM module/modem to the authorized number informing about the situation so that necessary action can be taken swiftly.	INDUSTRY BASED	BEEA_T46
47	MOHAMED AZMI BIN SAID	BEEA	Development of ABB IRB 120 Robot Bartender	This project will develop Rapid robot program to move the manipulator mix and shake ingredients for beverage. Research on robot tool trajectory by analyzing human hand movement is required. Robot mix and shake trajectories will be programmed by mimicking human hand movement. Robot mechanism to hold the beverage bottle will also be designed.	PRACTICE ORIENTED	BEEA_T47
48	MOHAMED AZMI BIN SAID	BEEA	Development of G-code to RobotStudio Rapid Target with Quaternion Orientation Format	G-Code is generated using CAD software such as SolidWork or AutoCAD. This code will be converted into a format on which RobotStudio Rapid able to import. All detail such as position and orientation, speed, accuracy, tool and workobject need to be considered. The tool orientation need to utilize standard quartenion format replacing old Euler angle.	PRACTICE ORIENTED	BEEA_T48
49	MOHD HANIF BIN CHE HASAN	BEEA	Development of Vehicle Traction Control for Mini Electrical Go-Kart	In electric vehicle, the possibility of controlling wheel torque almost instantaneously enables the implementation of different Traction Control (TC) strategies. The TC systems, or more generally wheel slip controllers, potentially suitable for EVs with multiple drivetrains. The TC control algorithm will be proposed and implemented on Mini Electrical Go-Kart.	PRACTICE ORIENTED	BEEA_T49
50	MOHD HANIF BIN CHE HASAN	BEEA	Development Regenerative Braking System for Mini Electrical Go-Kart	In electric-drive vehicles, regenerative braking is important because it can recover the braking energy and store it in the energy storage unit that is needed to propel the vehicle. Regenerative braking circuit and cooperative control algorithm will be proposed and implemented on existing FKM Mini Electrical Go-Kart. The FKM Mini Electrical Go-Kart is a prototype vehicle made by Autotronic Reaseach Team, FKM, UTeM.	PRACTICE ORIENTED	BEEA_T50
51	MOHD HANIF BIN CHE HASAN	BEEA	Development of Vehicle Steer by Wire (VSBW) System for Mini Electrical Go-Kart	In VSBW, steering wheel and front wheels are totally separated from any physicals link. The development of PID control scheme for directional control and wheel synchronization is needed. The control system is developed first using MATLAB/Simulink software and finally apply on real mini electrical go-kart. The performances of control schemes are examined in terms of input tracking capability, wheel synchronization and time response specifications with the absence of disturbances.	PRACTICE ORIENTED	BEEA_T51

BIL	NAMA PENYELIA	PROGRAM	TAJUK	SYNOPSIS	CATEGORY	TITLE CODE
52	MOHD HANIF BIN CHE HASAN	BEEA	Development of Teleoperation System for Mini Electrical Go-Kart	Teleoperation (or remote operation) indicates operation of a system or machine at a distance. Signals and images from the master controller side are sent over the network wirelessly. The effectiveness of the proposed system will be confirmed by the experimental.	INDUSTRY BASED	BEEA_T52
53	MOHD HANIF BIN CHE HASAN	BEEA	Development of Vehicle Brake by Wire (BBW) System for Mini Electrical Go-Kart	'Brake-By-Wire means that the direct mechanical link between brake pedal and braking cylinder is completely replaced by an electromechanical braking system. The clamping force control will be proposed and evaluated by experimental.	PRACTICE ORIENTED	BEEA_T53
54	MOHD HANIF BIN CHE HASAN	BEEA	Development of Arduino and IoT-Based Smart Home Safety System	The project to help the homeowner to monitor their home from any dangerous situation. The system equipped with the motion detection capability and will alert the house owner and police through an app if any suspicious activity detected. The Arduino and Wi-Fi module will take place in this sector. Besides, the fire and gas leaking detection system are embedded together to notify the owners before it's too late and it will automate the ventilation fan. In addition, vibration and water sensors installed to detect natural disaster earthquake and flood. All of this will automate the alarm system and alert the owner.	PRACTICE ORIENTED	BEEA_T54
55	MOHD RAZALI BIN MOHAMAD SAPIEE	BEEA	Development of IoT based exoskeleton for monitoring elbow rehabilitation therapy	Monitoring of knee joint recovery following injuries to human leg is sometimes very subjective. It depends on the experience of a physiologist to determine whether a patient has recovered based on qualitative measures. No qualitative data is available to support any decisions to be made on the course of therapy. To produce an knee exoskeleton of a single leg for lower limb augmentation / rehabilitation / assistance that can move the knee joint according to a given trajectory and read the joint angle and send/display data with IoT to mobile apps or web server for data retrieval. Knee exoskeleton hardware and circuit + mobile apps + web server. Remote monitoring and control via IoT.	INDUSTRY BASED	BEEA_T55
56	MOHD RAZALI BIN MOHAMAD SAPIEE	BEEA	Development of exoskeleton for knee rehabilitation therapy monitoring using IoT	Monitoring of knee joint recovery following injuries to human leg is sometimes very subjective. It depends on the experience of a physiologist to determine whether a patient has recovered based on qualitative measures. No qualitative data is available to support any decisions to be made on the course of therapy. To produce an knee exoskeleton of a single leg for lower limb augmentation / rehabilitation / assistance that can move the knee joint according to a given trajectory and read the joint angle and send/display data with IoT to mobile apps or web server for data retrieval. Knee exoskeleton hardware and circuit + mobile apps + web server. Remote monitoring and control via IoT.	INDUSTRY BASED	BEEA_T56
57	MOHD RAZALI BIN MOHAMAD SAPIEE	BEEA	Development of health monitoring system	""Monitoring of health is very important but normally health status is closely monitored when a patient is warded. Such health information like the heart beat, pulse and blood pressure are only recorded and kept in a specific system of the equipments involved. While continuous data is need for history, no quantitative data is available in real time outside of the ward. To produce a system that can monitor dan record real time data continously and send/display data with IoT to mobile apps or web server for data retrieval. Hardware and circuit with heartbeat / pulse / blood pressure sensor + mobile apps + web server. Remote monitoring and control via IoT.	INDUSTRY BASED	BEEA_T57
58	MOHD RAZALI BIN MOHAMAD SAPIEE	BEEA	Development of air quality monitoring system.	Monitoring of air quality is very important as it can affects human health and life. Polluted air inhaled during breathing can cause breathing related diseases. So, air quality information in term of the presence on pollutants such as carbon monoxide, alcohol, acetone, thinner, formaldehyde and other slightly toxic gases are needed to be continuously monitored and recorded in the field. While being continuously monitored, the air quality information must be made available in real time in other places. To produce a system that can monitor dan record real time data continously and send/display data with IoT to mobile apps or web server for data retrieval. Hardware and circuit with air quality sensor + mobile apps + web server. Remote monitoring and control via IoT.	INDUSTRY BASED	BEEA_T58
59	MOHD RAZALI BIN MOHAMAD SAPIEE	BEEA	Development of water quality monitoring system via Internet of Things (IOT)	Monitoring of water quality is very important as it can affects marine or aquatic lifes as well as human health and life. Low quality water which sometimes become polluted can cause water borne diseases and can kill aquatic lives. Water quality information	INDUSTRY BASED	BEEA_T59
60	MOHD ZAIDI BIN MOHD TUMARI	BEEA	Smart Plant Seeds Indoor Monitoring & Control System via Internet of Things (IOT)	This project involved the development of plant seeds indoor system. The humidity and temperature inside the system will be monitored via IOT. The fan is controlled automatically to compensate for the temperature inside the system. The water level inside the plant seed container also will be monitored and the dosing pump will be controlled automatically to maintain the water level. The LED lamp is used as a light source for the plant seed and will be turned ON according to the time assigned. ESP32 will be used as the main controller.	PRACTICE ORIENTED	BEEA_T60
61	MOHD ZAIDI BIN MOHD TUMARI	BEEA	Smart Mini Aquaponic Monitoring & Control System via Internet of Things (IOT)	This project involved the development of the mini aquaponic system. The water level, PH, turbidity, and temperature of the water will be monitored via IOT. The control valve is controlled automatically to maintain the water turbidity inside the system. The auto feeder will be used to supply the food to the fish and will be turned ON according to the time assigned. ESP32 will be used as the main controller.	PRACTICE ORIENTED	BEEA_T61
62	MOHD ZAIDI BIN MOHD TUMARI	BEEA	Water Surface Robot for Water Monitoring via Internet of Things (IOT)	This project involved the development of a water surface robot. The robot can manoeuvre on the water surface and monitor the PH, turbidity and temperature of the water via IOT. The movement of the robot is done by controlling the thruster through IOT platform. ESP32 will be used as the main controller and motor driver will be used to control the thruster.	PRACTICE ORIENTED	BEEA_T62
63	MOHD ZAIDI BIN MOHD TUMARI	BEEA	Water Surface Cleaning Robot and Trash Monitoring via Internet of Things (IOT)	This project involved the development of a water surface cleaning robot. The robot can manoeuvre on the water surface and monitor the trash on the water surface by using esp32-wifi camera via IOT. The movement of the robot is done by controlling the thruster by using RC transmitter. The robot can collect the trash by using the servo motor. There will be a load cell to measure the weight of the trash and ultrasonic sensor to measure the level of the trash inside the container. The reading of the sensors will be monitored via IOT. ESP32 will be used as the main controller and motor driver will be used to control the thruster.	PRACTICE ORIENTED	BEEA_T63
64	MUHAMMAD FAREQ BIN IBRAHIM	BEEA	Tennis ball launcher robot with voice and smartphone controller for training purpose.	During MCO, it is hard for Tennis player to play tennis because it is hard to find their sparring partner. This robot was designed to launching the tennis ball to player for training purpose. The objective of this robot is it will able to be controlled by voice to launch the ball, the angle and speed of launching can be controlled by the smartphone apps. Arduino will be used as the microcontroller. Several different motor will be used to control the speed and angle of launching. The analysis will be analyze the functionality of robot.	PRACTICE ORIENTED	BEEA_T64
65	MUHAMMAD FAREQ BIN IBRAHIM	BEEA	"Design and develop a smart car with alcohol monitoring driver system via sms notification"	Lately, there are some accidents that cause by a drunk driver. There are some action taken by government to solve this issue such as hold a new license to sell alcohol and increase the penalty punishment for driver that caught drive in drunk condition. The objective of this project is to design a smart car that will ask the driver to test level of alcohol before they can start the car. If the alcohol level is high, driver are not allowed to start the car and SMS notification will be sent to their emergency contact mention that the driver was drunk with coordinate of car. Arduino will be used as a microcontroller of this project with gas sensor and GSM Module. The analysis will be analyze alcohol level, sms notification as well as functionality of the whole system.	PRACTICE ORIENTED	BEEA_T65
66	MUHAMMAD FAREQ BIN IBRAHIM	BEEA	"Design and develop a human follower troley by colour/visual sensor"	When we go to shopping mall or market, it is normal for customer to bring a trolley to shopping. Customer will push or pull the trolley manually. This project is to design a human follower trolley for shopping purposes. The objective was to design a trolley with human follower application. The trolley will follow the human with dedicated colour that have been set earlier. Arduino will be used a microcontroller with additional of colour/visual sensor to detect the colour need to be followed. Later, the functionality of system will be analyze and important is to analyze at least 5 different colour to select the most accuracy colour and easiest to detect.	PRACTICE ORIENTED	BEEA_T66

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BIL	NAMA PENYELIA	PROGRAM	TAJUK	SYNOPSIS	CATEGORY	TITLE CODE
67	MUHAMMAD FAREQ BIN IBRAHIM	BEEA	Design and develop an automatic goat feeding machine by SMS and Android Controller	In Malaysia, shepherd will feed the food to their goat manually and this will used a lot of time. This project is to make that current goat feeding system automated. The objective of this project is to design and develop an automatic goat feeding machine with SMS and Android Controller. The machine will automatic feed food for goat within dedicated time. And once the food is less than 10% capacity, the system will give sms notification to user mention the level is almost empty with the coordinate of the machine. This machine can be controlled by android to avoid shepherd go inside the goat cage to make job easier. The analysis was to analyze functionality of the machine and whole system.	PRACTICE ORIENTED	BEEA_T67
68	MUHAMMAD FAREQ BIN IBRAHIM	BEEA	Automatic Coffee Temperature Control using Voice Recognition	"This project is to design and develop an Automated Coffee Temperature control with Voice Recognition. The device will able to maintain the Coffee temperature accordingly and it can set with various temperature. The temperature can be controlled by using switch manually and wifi apps. Voice recognition will be enable user to set it by using voice."	PRACTICE ORIENTED	BEEA_T68
69	ROZILAWATI BINTI MOHD NOR	BEEA	Development of Smart Garden System using Arduino	This project focusing on developing small scale garden with automatic system. The smart garden will operate the whole system from irrigation, detecting moisture, automated sowing system and monitors and tracks environmental conditions which can help the plants thrive. The sensors are used to measure the moisture in the soil and the temperature, and automatically controls the flow of the water through to the plant. If the plant in their garden with given adequate water and scheduled and monitored. Thus, the plant will grow up healthy.	PRACTICE ORIENTED	BEEA_T69
70	ROZILAWATI BINTI MOHD NOR	BEEA	Autonomous navigation for agricultural robot using AI based method.	This project propose to develop agricultural robot for navigation system by implementing AI based method. Automated agricultural robots save labour costs, prevent people from performing risky operations, and provide the farmer with up-to-date and precise information. The navigation algorithm must use sensory information to determine a suitable trajectory, make a decision, and move correctly within its environment without collision.	PRACTICE ORIENTED	BEEA_T70
71	ROZILAWATI BINTI MOHD NOR	BEEA	Development of Braille Learning Device using Arduino.	Braille is a writing system used by people who are visually impaired and it is typically written on embossed paper. For visually impaired people, reading refers to braille reading through touch. Normally reading material for visually impaired person is printed onto paper. However, nowadays, everything has been digitized. Hence this project proposed on developing a braille learning device which can convert digital text from document to an electronic device. Each character is read and the corresponding dots representing the character in the braille alphabet is displayed. The system can also be a handy tool for teaching and training the visually impaired people.	PRACTICE ORIENTED	BEEA_T71
72	ROZILAWATI BINTI MOHD NOR	BEEA	Development of an autonomous cleaning robot for indoor space	This project is focus on developing an autonomous cleaning robot for indoor space. This robot have an ability to avoid obstacle and doing surrounding mapping during cleaning process. For mapping process sensor will be use and an algorithm will be develop so that the robot can operate based on the path planning instructed. Arduino will be use to operate the whole system. User also can start, stop, and monitor the whole cleaning process by using android.	PRACTICE ORIENTED	BEEA_T72
73	ROZILAWATI BINTI MOHD NOR	BEEA	Development of Local Herbal Plant Recognition using Image Processing	For this project, a few image of herbal plant will be analzed using image processing and a set of databased will be develop. All the image will be analyzed based on physical structure to indicate which plan or class it is belong by using pattern recognition method.	PRACTICE ORIENTED	BEEA_T73
74	SALEHA BINTI MOHAMAD SALEH	BEEA	Development of IoT-Enabled Smart Vending Machine using Arduino	Traditional vending machines generally used cash and coin payment and the sales can be known only by checking the remaining stocks. This old-school purchasing method has troubled many cashless customers as they will choose not to buy the item if they have not enough amount of cash or coins. Also, this kind of traditional vending machines are troublesome because the owner has to physically collect the money at the machine. Hence, the IoT-Enabled Smart Vending Machines will implement scan-to-pay and real-time sales tracking system which best suited the post-Covid world. Several objectives can be achieved in this project such as a touch-free transactions, cloud-based sales and inventory reporting and able to remotely manage pricing, images and content in this system. The touchscreen, RFID scanner, several type of motor and several different sizes of spiral will also be used to handle the function of physical system.	INDUSTRY BASED	BEEA_T74
75	SALEHA BINTI MOHAMAD SALEH	BEEA	Development of Motor Speed Control using IoT for Online Learning	This project will implement the function of IoT to control and observe the response of the motor for online learning purpose. Any suitable software such as Visual Studio IDE, Eclipse IDE, etc can be used to develop the Graphical User Interface. Meanwhile, an Arduino and other suitable controlling software such as NodeMCU will be applied to control the motor. This apps also can be used to control other application that requires wireless connectivity. The performance of the motor will be analyzed in this project.	PRACTICE ORIENTED	BEEA_T75
76	SALEHA BINTI MOHAMAD SALEH	BEEA	Development of UV Rays Sanitizing Drone for Industrial Building	Sanitizing large building with human effort is not an easy task. It increases the chances of contracting infection, leading to further spread of harmful microorganisms. This project will use the power of UV rays to kill germs and ultra sonic sensor to avoid any obstacle during sanitisation process. The drone can also give a live video stream of its surroundings. A WiFi will be applied to control the drone and its GUI will be allowed to drive the drone inside a building without physically existence. Movement of drone and effectiveness of UV light will be analysed.	INDUSTRY BASED	BEEA_T76
77	SALEHA BINTI MOHAMAD SALEH	BEEA	Development of Fall Detection and Health Monitoring System based on a Wearable Sensor for Elderly Caregiver	This project proposes a fall detection system and send the information to the caregiver about the exact location and health condition such as the heartbeat information of the patient by designing a GPS tracker and analyse the angular acceleration. A most suitable sensor also will be used to detect the seriousness of the patient's condition. The main component that is being used is Arduino Nano, MPU 6050, GSM Module and a heartbeat sensor. While for the software, the apps that will be used are Thunkable and Firebase.	PRACTICE ORIENTED	BEEA_T77
78	SALEHA BINTI MOHAMAD SALEH	BEEA	Development of Radio Frequency Identification Tracking System in Industry Warehouse Using Drone	For industries that rely on a large variety of tools, managing the availability of those assets is a challenging process. To find materials in large industry takes more time and energy. Depending on the level of complexity, RFID tracking system will be applied to track which tools have been grabbed, which employees have taken resources, and which resources haven't been returned to the tool crib using drone. Also can be used in any industry warehouse. This system will use drone, arduino and several suitable sensors to track the location of material that will save cost, time, and energy consumption to find material. The system will be tested and analysed in term of accuracy of RFID signal and time consumption for material detection.	INDUSTRY BASED	BEEA_T78
79	SHAHRUDIN BIN ZAKARIA	BEEA	Development of Training Modules for Industrial Automation Systems Based on Real Industrial Automation System (Industry I / II / III)	The project uses Visual Basic to build a visual automation system (in a visual order). This automation system is mapped directly to the ladder diagram so that it can be viewed in parallel and at a simultaneous basis. The most important factors such as the time difference between the two events are appropriate for the learning process (perhaps these factors can be modified later by changing specific settings). It will be useful for students in their learning sessions. Development modules may include other learning accessories for additional assistance. Examples (depending on the time and student's creativity), include pause control, repeat adaptability, settings, storage of personal learning levels and others. The automation process is based on training needs in the lab room or based on the actual factory automation process. The choice of the industry depends on the student's creativity. Be creative and innovative. There may also be a process improvement that the student proposes as an alternative to the actual process to enhance the student learning process. It is here that there may be analytical values to be learned while developing this learning module. That is, the ability to improve an automation process by a student. Only 2 students allowed to register this title.	PRACTICE ORIENTED	BEEA_T79
80	SHAHRUDIN BIN ZAKARIA	BEEA	Development of IoT Automatic Clothes Folding Machine With Recovery System	This project introduces the design process and design results of the fabric folding machine. Since, folding clothes is always a tedious process for most people, it is a good idea to produce machines that can reduce the work and time of folding clothes. However, it also completely Internet Of Things when the users can make recovery system or troubleshoot by monitoring at fingertips if the machine breakdown or need to be reset. The final product is designed for household use and aims to compete with similar products available. Design the process includes research in the background of relevant information and standards, requirements specifications, concept generation and selection, and engineering analysis. The final product achieved several of the performance goals, including completing one cycle in less than 20 seconds, completing ten set of clothes folded consecutively without failure.	PRACTICE ORIENTED	BEEA_T80

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BIL	NAMA PENYELIA	PROGRAM	TAJUK	SYNOPSIS	CATEGORY	TITLE CODE
81	SITI NUR SUHAILA BINTI MIRIN	BEEA	Soil Monitoring and Control Systems in Agriculture Using IoT	In recent years, intelligent sensor techniques have achieved significant attention in agriculture. It is applied in agriculture to plan the several activities and missions properly by utilising limited resources with minor human interference. Currently, plant cultivation using new agriculture methods is very popular among the growers. However, the aeroponics is one of the methods of modern agriculture, which is commonly practiced around the world. In the system, plant cultivates under complete control conditions in the growth chamber by providing a small mist of the nutrient solution in replacement of the soil. The nutrient mist is ejected through atomization nozzles on a periodical basis. During the plant cultivation, several steps including temperature, humidity, light intensity, water nutrient solution level, pH and EC value, CO_2 concentration, atomization time, and atomization interval time require proper attention for flourishing plant growth. Therefore, the objective of this project to provide significant knowledge about early fault detection and diagnosis in aeroponics using intelligent techniques (wireless sensors). So, the farmer could monitor several paraments without using laboratory instruments, and the farmer could control the entire system remotely. Moreover, the technique also provides a wide range of information which could be essential for plant researchers and provides a greater understanding of how the key parameters of aeroponics correlate with plant growth in the system. It offers full control of the system, not by constant manual attention from the operator but to a large extent by wireless sensors. Furthermore, the adoption of the intelligent techniques in the aeroponic system could reduce the concept of the usefulness of the system due to complicated manually monitoring and controlling process.	PRACTICE ORIENTED	BEEA_T81
82	SITI NUR SUHAILA BINTI MIRIN	BEEA	Predictive data analytic for smart agriculture to prevent disease	predictive data analytic for smart agriculture to prevent disease	PRACTICE ORIENTED	BEEA_T82
83	SITI NUR SUHAILA BINTI MIRIN	BEEA	Development of A Mobile Robot for Monitoring Plant Health and Volume condition.	"Precision agriculture has been increasingly recog- nized for its potential ability to improve agricultural productivity, reduce production cost, and minimize damage to the environ- ment.In this work, the current stage of our research in developing a mobile platform equipped with different sensors for orchard monitoring and sensing is presented. In particular, the mobile platform is conceived to monitor and assess both the geometric and volumetric conditions as well as the health state of the canopy. To do so, different sensors have been integrated and effec- tive data-processing algorithms implemented for a reliable crop monitoring. Experimental tests have been performed allowing to obtain both a precise volume reconstruction of several plants and an NDVI mapping suitable for vegetation state evaluations."	PRACTICE ORIENTED	BEEA_T83
84	SITI NUR SUHAILA BINTI MIRIN	BEEA	Development of smart stove with recycle biogas from kitchen waste	This project is a combination of Iot Smart Stove and Biogas which make Biogas IoT Smart Stove where the biogas is used for cooking when an anaerobic digestion is happened from the food waste that is collected to be decomposed to make Biogas. To ensure an optimum production of Biogas the Nutrient Content, Humidity, Continuous Feed Of Substrates, Gas Outle, Avoidance Of Disturbing Substances, Particle size , pH ,Temperature ,Retention time, Organic loading rate (OLR), Hydrogen concentration, Moisture content, Inoculum and Total solid (TS) need to be consider in order to have an optimum amount of biogas. This project provide free renewable cooking gas that also produce free fertilizer from the anaerobic digestion and with safety feature which have the ability to detect gas or fire in a certain reading and when it is exceed to the certain reading which give a warning to the user through text with the use of IoT and the stove knob will automatically turn the fire off with the use of motor that will be install to the stove knob. Besides that, to turn the stove knob off is either it turn its self-off when the sensor detect fire or gas in certain reading or the user use an app called Blynk Apps that can control the stove knob wirelessly to turn It OFF and user also can monitor their stove whether it is ON or OFF when leaving the house through the Apps with the use of Wifi. The WiFi UNO Based ESP8266 is used to connect to the gas sensor and a fire sensor to find out if there is a gas leakage or a fire. Then a signal will be send to the stove knob to automatically turn the fire OFF and also send the signal to someone via a text message and also to the Blynk Apps. With this user can take action and monitor the condition of the stove through Blynk Apps and this will avoid accident happen that involve fire.	PRACTICE ORIENTED	BEEA_T84
85	SULAIMAN BIN SABIKAN	BEEA	PCB Design Process and Fabrication Using Cloud Based Electronic Design Automation Software	The Electronic design automation (EDA) or electronic computer-aided design (ECAD) is a category of software tools for designing electronic systems such as integrated circuits and printed circuit boards which is available in form of offline or online modes. Some user have mainly been interested in online, open-source and freely to use software. The main project objectives is to produce a real PCB board and analyse the advantage and disadvantage of that PCB development process using Cloud Based Electronic Design Automation Software, compare with paid and offline software. This project, will come out with working PCB Board. Students with good experience and knowledge in PCB design are welcome.	PRACTICE ORIENTED	BEEA_T85
86	SULAIMAN BIN SABIKAN	BEEA	Development of an Online Monitoring System for an Anaerobic Fermentation Process using IoT	Fermentation is a metabolic process that produces chemical changes in organic substrates through the action of enzymes. In biochemistry, it is narrowly defined as the extraction of energy from carbohydrates in the absence of oxygen. In food production, it may more broadly refer to any process in which the activity of microorganisms brings about a desirable change to a foodstuff or beverage. In-tank fermentation monitoring, for example of beer, wine, spirits or organic materials is the essential part in Fermentation Process. Anaerobic fermentation occurs in the fermentation vessel once the oxygen is discharged and replaced with N2, CO2, or another by-product of the fermentation process. This project main objective is to design and development of Online Monitoring of Anaerobic Fermentation Process. This project required knowledge in microcontroller, IoT and gas sensor and pressure measurements.	PRACTICE ORIENTED	BEEA_T86
87	SULAIMAN BIN SABIKAN	BEEA	Design and Development of Semi-Automated Wall Plastering Machine	Due to manual process of wall plastering on construction site, there is a huge scale requirement of labour and hence the labour cost is responsible for increasing the price of construction or project work. The quality of work is mostly depending on the skill of the labour work in manual plastering process. The main objective of this project is to design and develop a wall plastering machine to solve of these problems. The plastering machine can plaster the walls automatically and very smoothly, hopefully. Student with basic knowledge in the house construction and interested in electrical mechanical design are welcome.	PRACTICE ORIENTED	BEEA_T87
88	SULAIMAN BIN SABIKAN	BEEA	Design and Development of Automated Portable Round Shape Belacan Packaging Machine	Belacan is one of the traditional products that are very popular with the people of the Nusantara region. There are many shapes and sizes available in the market. It is also one of the famous tourism products. However, many small retailers have difficulty in packing belacan into the desired shape, round shape for example. Usually, they use the manual method. The main objective of this project is to design a portable machine that can make round belacan packaging without using the pneumatic system, portable and easy to operate by user. The system needs a medium scale container, with 10kg payload, then goes into an extruder to make the belacan in the form of a cylinder and then form a round belacan that is ready to be inserted into the packaging plastic.	INDUSTRY BASED	BEEA_T88
89	SULAIMAN BIN SABIKAN	BEEA	Development of Self-alignment equipment for a Fence Post Installation	Alignment proper installation of fence posts is a problem often encountered by construction workers. Usually they use beam level equipment that needs to be measured manually. In this project, the main objective is to design an equipment that contains 3D MEMS technology accelerometer sensor that can be easily attached to the pole structure which is to be installed. It will detect the 3D position alignment to ensure the pole is in the correct position, i.e. in an upright position and not tilted in any direction. A warning sound will be generated as long as the pole is not yet in a completely vertical or horizontal position. With this tools, the use of beam level is no longer required.	PRACTICE ORIENTED	BEEA_T89
90	SULAIMAN BIN SABIKAN	BEEA	IoT-based smart home automation using solar powered system	World nowadays shows massive development especially in technology. For example, the Internet of Things (IoT) application. Other than that, every single system that implement simple connection with (IoT) application would attract and gain attention from many parties. Internet has become one of the needs in this world. Thus, internet has become main choice from users to control technology from all over the world starting from industrial machine to consumer good that would help in completing task with less problem and lots of benefit. Smart home automation system uses computer or mobile devices to control electrical device from everywhere. This system is meant to save energy and easier to handle. This project implement the needs of arduino wifi module (esp32) and mobile apps as a connection medium between the mobile phone and electrical appliances at home. The solar system in this project is renewable energy that uses to give supply when night or if has leakage current at home and can monitoring the solar energy uses IoT.	PRACTICE ORIENTED	BEEA_T90

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

BIL	NAMA PENYELIA	PROGRAM	TAJUK	SYNOPSIS	CATEGORY	TITLE CODE
91	SULAIMAN BIN SABIKAN	BEEA	GENERATING DATABASE OF VEHICLE AT TOLL GATES WITH RFID & IOT TECHNOLOGY	"INTRODUCTION/SUMMARY This project has been conducted to create a new way of developing a database of vehicles that pass the toll gates and also detect the vehicles travelling with expired road tax. This system will be implemented in toll gates. At first, the road tax sticker pattern should be changed. All road tax sticker should be added with a RFID tag together which holds the information such as car plate number, road tax expiry date and car type. An additional RFID reader will be placed in all toll booth lanes despite of TnG Lane, Smart Tag lane, RFID lane and Cash lane. This system does not interfere with toll gates charges system as the sole purpose of this system is only to collect the information to generate database and detect expired road tax vehicles. When a vehicle with the new road tax sticker with RFID tag arrive at the toll lane, the RFID reader will read the RFID tag in the car and record the information and insert in the database. RFID reader will send this information to IoT controller . Sensed registration number can looked in to cloud database for purposes. For an example, BND 5566 passed Sungai Besi Inbound toll at 8.32pm. Furthermore, the system also compare the expiry date of the Road Tax with the current date. If the system finds the road tax is expired, the camera will capture the image and alert the relevant department to issue a summon or warning. Moreover, with the database of vehicle that passed a toll gate, police investigation can be done more easily in tracking the accused vehicle. An an additional to this system, a special 'watch list vehicle' option will be implemented. It works when we insert a vehicle's number plate in the 'watch list vehicle' option, the system alerts whenever the particular vehicle got detected at any toll booth in Malaysia. Besides that, It is also difficult for the government to stop the public 100% for illegally travelling interstate during Movement Control Order (MCO) period. With this database, the police also can track the vehicles that crossing the border illegally. However, this system has some limitation in terms of how if the car RFID tag did not work. This issue should be rectified in further process using counter operation. This system is believed to cost a higher amount, energy and more time for implementation but this system definitely increase the defense system in our country. • An Own database & simple low/high frequency RFID tag and reader will be used as prototype for demonstration purpose for this project Future Development 1) Combine this system together with 'vehicle number plate detection and recognition' (Phyton OpenCV) using camera to improve the effeciency of the system and better track of vehicle movement. OBJECTIVE 1) Generate database of vehicles using toll gates 2) Detect vehicles with expired road tax 3) Create a better vehicle tracking system on road"	PRACTICE ORIENTED	BEEA_T91
92	SULAIMAN BIN SABIKAN	BEEA	DEVELOPMENT OF SHOCK DETECTOR FOR VEHICLE ACCIDENT ALERT SYSTEM	INTRODUCTION/SYNOPSIS Accident at late nights and remote areas causes a delay in the reaction time of getting medical attention to the victim. This device detects if the car met an accident, it automatically acquire its location and send an alert SMS to the phone number set (Parent's number, Hospital). The alert SMS will be sent after a minute and during the first minute the victim wil be given an option to stop sending the alert SMS if the victim is fine enough to handle it. OBJECTIVE: 1) To reduce the delay in time for victim for get medical attention 2) Reduce the worry of parents 3) Provide a low cost product that every owner can own it Methodology For demonstration purpose,a small car with multiple piezo electric sensor will be placed at critical point at the car. Once the car hit, the vibration generate causes the piezo electric to generate some voltage. This voltage will be then amplified to required voltage (5V) and send to the arduino controller to confirm the accident. The time starts to count meanwhile the GPS will acquire the latitude and longitude details. After a minute, with the help of GSM in the system, the SMS will be sent to the respective people. If the victim is fine and abe to manage on own, the victim will be able to switch off from sneding the alert SMS.	PRACTICE ORIENTED	BEEA_T92
93	SULAIMAN BIN SABIKAN	BEEA	Development of IOT-based aquarium monitoring and control system	Many people feed the pet fish in the aquarium tanks that need to be properly set up and maintained, or the fish will be destined to an unpleasant and short life. However, the aquarium tanks need to be properly set up and maintained, or the fish will be destined to unpleasant and short life. Therefore, it is critical to monitor water conditions closely and improve the water quality for the aquarium tanks. This problem can be controlled using Internet of Thing (IoT). Basically this (IoT) system can be easily controlled using smartphone. Using (IoT) it can allow the user to quickly deploy intelligent control for various water conditions. This system also was designed to monitor the pH value that is suitable with the type of fish life and can easily implement smart feeding that allows the user to remotely enjoy manual feeding while the fish are neither underfed nor overfed. It also can clearly detect the functionality of the water pump by sending the notification to our smartphone. For conclusion, this system will be more easier to be handle by the user to remain their aquarium in a good condition.	PRACTICE ORIENTED	BEEA_T93
94	SYAHRUL HISHAM BIN MOHAMAD @ ABD RAHMAN	BEEA	Design and development of optical process tomography for piping inspection	An optical process tomography with 2 orthogonal projection is being designed to be implemented at a vertical column modeled. This system will be designed from development of transducer pairs to the data acquisition system implemented.	PRACTICE ORIENTED	BEEA_T94