

SV Name	Student Name	Title	Synopsis	ETAC	Moderator comment(s)	
1	DR. FARA ASHKIN BINTI ALI	HARITH HAIQAL BIN FAIRUZ EFFENDY	Development of Microcontroller Based Safety System for Motorcycle	Intro: In Malaysia, motorcycle becomes a dominating transport mode since it is fuel economy and time saving. It is also a major mode of personal transport for the low-income urban community. However, the road accidents including fatalities involving motorcycle riders and pillion in Malaysia has been consistently more than 4,000 in a single year for the past ten years. One of the reasons is due to unsighted the blind spot. This is a serious issue and has received considerable attention by the government. Therefore, the developments of vehicle detection in the blind spot area for motorcycle rider's safety to prevent another road death are indeed much needed. Objectives: 1. To develop a safety system for motorcycle 2. To detect obstacles in a specific range of area 3. To control the velocity of motorcycle for safety purpose. Methodology: 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 as a current, and active power will be measured. Subsequently, the collected data from each sensor node will be sent to the sink for further processing. The total power consumption can be computed in the sink. Additionally, the electrical device that consumed the highest power can also be identified. This	Practice-oriented	Title and project synopsis are acceptable
2	DR. FARA ASHKIN BINTI ALI	IZZUL IDLAN BIN MAZLAN	Development of Microcontroller based Real-Time Monitoring and Temperature Control in Vehicle Application	Intro: Generally, there are two types of radiator fan used in vehicle for cooling which are mechanical and electrical fan. The mechanical fan speed is adjusted by the vehicle's engine speed that may result the engine overheat as the vehicle moves slowly. Besides, the electrical fan operates by using thermostat which acts as a switch to open or close a coolant valve. However, there is a case that the thermostat unable to functions properly due to corrosion, hence result overheating of the vehicle's engine. Therefore, this work proposes a microcontroller based temperature control in vehicle application. Objectives: 1. To develop a device for monitor vehicle's temperature in real-time 2. To develop a device that control the vehicle's temperature 3. To analyze and compare the performance of the developed device with conventional method. Methodology: 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 Aruply 2.2 SOFTWARE in this module, this project using Blynk application as well as the Website application for this project. Admin web page will contain and display the information like Logi	Practice-oriented	Title and project synopsis are acceptable
3	DR. FARA ASHKIN BINTI ALI	WAN AMIERUL SYAZWAN BIN WAN MOHD AFFANDI	Design and Analysis of Lecture Rooms and Laboratory Illuminance in FTKEE, UTeM using DIALux Evo	Intro: Lecture rooms are often used for lecture, seminars, and as a discussion place for students. Meanwhile, laboratories are used for students to complete their experimental work. Seeing how important of the lecture rooms and laboratories are, hence, comfort is a factor that needs attention. However, most of the rooms feel dark which affect the comfortability of the students. Therefore, it is needed to re-analyze the lighting performance of the rooms. Objectives: 1. To analyze the lighting performance of lecture rooms and laboratories in FTKEE, UTeM 2. To design and propose an efficient lighting system for lecture rooms and laboratories 3. To optimize the luminous environment for student comfort. Methodology: The project is a simulation project using DIALux Evo software. Expected outcome: By this project, the illuminance of all lecture rooms and laboratories in FTKEE, UTEM are meet the standard of MS 1525	Practice-oriented	Title and project synopsis are acceptable
4	DR. FARID ARAFAT BIN AZIDIN	MOHAMAD HAIKAL DANIEL BIN ARIFIN	Development of Safety Environment System for residential area based on IoT	This project aims to ensure the safety and health of residents in an area in terms of several aspects such as Temperature and Humidity, Floods and Gas Content in the air. So, this project can help residents, especially in taking immediate action if something unexpected happens and help reduce health risks due to the environment by getting notifications either by application on mobile phones or directly with a siren. The project uses NodeMCU as a microcontroller and embedded WiFi module, DHT22 sensor (temperature and humidity), Ultrasonic sensor (water level) and MQ135 (air quality). All results from sensor readings will be displayed on the LCD, android application, and LED, Buzzer as an indicator. Among the readings from the sensor such as air temperature and humidity readings, the quantity of gas in the air and the water level measured.	Practice-oriented	Title and project synopsis are acceptable
5	DR. FARID ARAFAT BIN AZIDIN	NAATHINI A/P VUAYAN	Development of Material Disposal Machine using Microcontroller	This project would develop to reduce the pollution of waste materials at the recycle center and waste composite site and to encourage the users to do recycle process by giving them benefits such as money. The machine system is equipped with a sensor that will help the process of assembling items and heavyweight recycling. The amount of weight will be displayed on the LCD screen and will connect directly to the cash register PC. C programming is used to program the PIC16F877A microcontroller for displaying messages and prompts on an LCD. This material disposal machine system can help attract people to recycle as it benefits them and can help reduce the amount of waste material.	Practice-oriented	Title and project synopsis are acceptable
6	DR. FARID ARAFAT BIN AZIDIN	PAVEETHRA A/P KUMARAN	Development of Automatic Door Control with Body Temperature System for preventing from Covid-19 using Arduino	This project aims to minimize the occurrence of disease transmission through non-physical contact with objects that often used. The process begins by PIR sensor detects the human by their movement and immediately will start to screen the body temperature and displayed it on LCD. This automatic door system uses an temperature sensor with arduino uno for the connection of sending temperature measurement to the 16x2 LCD. If the results of body temperature measurement is higher than 37C, the door will not open and produce a red light to alert while the body temperature is normal, the door will automatically open and produce a green light to enter.	Practice-oriented	Title and project synopsis are acceptable
7	DR. HAFEZ BIN SARKAWI	AFIQAH FATINI BINTI SHAMSUDIN	Development of High Efficiency Dual Transistors DC-DC Zeta Converter in Discontinuous Conduction Mode	In energy harvesting system, DC-DC converter is part of the energy management system. In discontinuous conduction mode (DCM) operation, typically, conventional DC-DC converter circuit is used which consists of a transistor and a diode. For this project, a DC-DC Zeta converter with two transistors operating in DCM is developed. A microcontroller is used to produce a digital control strategy to stabilize the converter.	Practice-oriented	Title and project synopsis are acceptable
8	DR. HAFEZ BIN SARKAWI	AMIRUL SYAFIK BIN ZAINAL ABIDIN	Development of DC-DC Zeta Converter Voltage Regulation Based On Limit Cycle Of The State-Trajectory	Solar energy is a source of renewable energy that is abundant especially for the countries near the equator. In solar energy harvesting system, a DC-DC converter is part of it. Due to the fluctuations of the irradiance from the solar energy, the output voltage of the DC-DC converter is not constant and needs to be regulated. This project investigates a switching control algorithm that traps the system into a stable limit cycle while ensuring the required voltage regulation. The DC-DC Zeta converter's topology is used and operates in continuous conduction mode (CCM). A microcontroller will be used to implement the switching control algorithm. With the successful completion of the project, even though the input voltage and load vary, it is expected the output voltage remains at the desired value. The project is designed to detect the faces and to determine whether the person wears a face mask or not. If any person is detected without using a face mask, an alarm will be triggered and security personnel will receive a notification on their mobile phone. This project uses a camera that will capture the image of the people entering public places, and Arduino is then used to process the information whether the person wears a face mask or not. With the successful completion of this project, the task of enforcing the SOP compliance is much easier.	Practice-oriented	Title and project synopsis are acceptable
9	DR. HAFEZ BIN SARKAWI	MUHAMMAD AIMAN BIN MOHD ZULKERNAINI	Development of Face Mask Detection For Covid-19 SOP Enforcement	Smart pet cage is a system that designed to monitor the pet needs particularly when the owner is not at home. The pet cage system will monitor and dispense water and food to the pet, as well as cleaning the litter box automatically with the help of integrated sensor and camera. The owner can monitor his pet remotely as well as controlling the system via wifi connection. Lack of food and not enough water consumption may lead to pet starvation and dehydration. Dirty litter box will cause harmness not only to the pet which can cause infections but also to human. This system use Arduino as microcontroller and camera to do the monitoring task. The wifi module is used to achieve internet functionality. The motor and servo will serve as actuator. This system also consists of PIR motion sensor to detect pets' movement. Thus, we get a fully automated smart pet cage that allows for pet monitoring.	Practice-oriented	Title and project synopsis are acceptable
10	IR. TS. DR. MOHD FAUZI BIN AB RAHMAN	AZIM BIN ZAINAL LUDIN	Development of an IOT based smart pet cage by using microcontroller	This project uses a biometric fingerprint sensor to authenticate users from entering premises, and thus provide security to the owner, as well as providing keyless entry operation. The security system is set based on the following procedures: (1) First, users are allowed to register into the system, (2) Upon registration/enrollment the system allows to start monitoring, (3) In the monitoring mode, the system monitors for fingerprints. (4) If a fingerprint is detected, the system scans the fingerprint against the stored ones. (5) If a match is found, the system operates the motors to open the door for those users, else the system does not open the door. (6) Apart from that, the closing/opening of the door can be monitored and controlled using a mobile phone, through WIFI module.	Practice-oriented	Title and project synopsis are acceptable
11	IR. TS. DR. MOHD FAUZI BIN AB RAHMAN	MUHAMMAD HAIQAL BIN SAIFUL NIZAM	Development of an IOT based smart door security system with biometric sensor using microcontroller.	Smart Gardening is needed to ease the farmer's labor and time consumed. Its better if the system can tell the farmer which one has weed and need to pick it. The project is to focus on how to identify weed using Esp32 Camera and Android Studio, then tell the farmer or use actuators to pick up the weed automatically	Practice-oriented	Title and project synopsis are acceptable
12	IR. TS. MOHAMMAD 'AFIF BIN KASNO	ABBY DANIEL ZIKRI BIN ABU BAKAR	Development of IOT Based Smart Garden Weed detector and remover System using Esp32, Esp 32 Camera and Android Studio	Malaysia is facing after pandemic activities therefore some of the requirement is needed before attending classes as to take student's temperature and attendance records. However, its vexing to take everyone's body temperature and records manually. Therefore, the project is to develop an android apps using android studio, Face Recognition, smartphone camera and human temperature sensor to automatically take the temperature and detect whether the students is healthy or sick. Then, the attendance for healthy students will automatically taken for lecturer's use by using face recognition.	Practice-oriented	Title and project synopsis are acceptable
13	IR. TS. MOHAMMAD 'AFIF BIN KASNO	NUR ADLINA BINTI AIMY	Development of IOT Based Smart Student Attendance using Face Recognition, Android Studio and Smartphone Camera	Malaysian facing obesities crisis nowadays however they are hardly control themselves regularly. One of the source for Malaysian obesities are Malaysian delicious delicacies and foods. The project is to develop an android apps using android studio, Machine Learning and Smartphone Camera to identify Malaysian food and drink automatically without having to type. After that, the apps will do the calculation and reminder for the user on how much calories and water they already eat and how much more needed / overtake.	Practice-oriented	Title and project synopsis are acceptable
14	IR. TS. MOHAMMAD 'AFIF BIN KASNO	TENGGU NUR NADIRA BINTI TENGGU KAMARUL BAHIRM	Development of IOT Based Smart Daily Malaysian Food and Drink Healthy Calculator Reminder Using Android Studio, Machine Learning and Smartphone Camera	The project will use Arduino to monitor the water PH level and use a PH stabilizer droplet to maintain the PH level of water to ensure the "Talapia" fish stay healthy. The aquarium also will have a feature of a pallet dispenser to ensure the fish will feed on time and the correct amount being dispensed to ensure water quality being maintain as clean as possible and minimize the effect of the PH level as well. The water PH level and dispensing timer can be monitored through phone apps (MIT apps / Blynk) that will be programmed to suit the requirements.	Practice-oriented	Title and project synopsis are acceptable
15	IR. TS. MOHD SYAHIRIN AMRI BIN MOHD NOH	MUHAMMAD FADHIL BIN BAHARUDDIN	Development of IOT aquarium water quality monitoring and pallet dispenser by using microcontroller	The project will use Arduino to monitor the internal and external house conditions. It can turn on/off the home lamp and alarm as well through phone apps (MIT apps / Blynk). Once there is an intruder there will be a notification through the owner's phone and selected neighbours as well. The owner can immediately turn off the alarm through phone to avoid interrupting the neighbour on the loud and annoying alarm sound.	Practice-oriented	Title and project synopsis are acceptable
16	IR. TS. MOHD SYAHIRIN AMRI BIN MOHD NOH	MUHAMMAD HAKIMI BIN HALIM	Development of IOT based Home Security System by using microcontroller	The project will use arduino to combine with the designed infusion pump to control and monitor the medicine drip to individual patient by using phone apps (MIT apps/Blynk). The phone will be able to track the medicine that being used and the dosage as well for analysis and tracking purpose	Practice-oriented	Title and project synopsis are acceptable
17	IR. TS. MOHD SYAHIRIN AMRI BIN MOHD NOH	NUR NAIWA BINTI MOHD HAFIZ	Development of IOT syringe infusion pump using microcontroller	The prototype should be able to turn on/off room light & fan automatically using sensor counter. A mobile application will also be able to control and monitor electricity usage and room occupancy for better efficiency of energy saving. This project can be implemented for various applications such as air conditioner or projector.	Practice-oriented	Title and project synopsis are acceptable
18	RAEIHAN BINTI MOHD ZAIN	MUHAMAD ASHRAF BIN MOHD AZMAN	Development of a prototype energy saving device for efficient usage of room lighting and fan using a bidirectional counter method and mobile application controller	This prototype should be able to lock/unlock the door at desired time using mobile application that will be controlled by the administrative. The application also will provide usage data of each room available. This will ease the administrative personnel so that they are not required to lock/unlock each classroom on daily basis.	Practice-oriented	Title and project synopsis are acceptable
19	RAEIHAN BINTI MOHD ZAIN	NOOR AINUN NABIHAH BINTI ABDUL MUTTALIB	Development of IoT Based Smart Room Locking and Monitoring System for classroom using ESP8266 controller and mobile application	The goal of this project is to create a home automation system utilising an Arduino board and an Android-based smartphone or tablet. Technology is developing at a very fast pace, and homes are becoming increasingly intelligent. Switches are currently installed in various locations throughout the house.	Practice-oriented	Title and project synopsis are acceptable
20	SITI HARYANTI BINTI HI HAIROL ANUAR	JEEVA PRAKASH A/L MUTHU	Development of Internet of Things (IoT) for home appliances using microcontroller		Practice-oriented	Title and project synopsis are acceptable

21	SITI HARYANTI BINTI HJ HAIROL ANUAR	MOHAMMAD SYAFIQ BIN AKMAL AZIZ	Development of smart automatic casement using microcontroller	The problem we have today is, everyone is busy working and sometime late back to home. This project to secure the window at the house even without anyone at home. To help people to close the window and secure house. Using Arduino as controller and servo motor to adjust window to open and close. IOT are also used to notify home owner that everything happen according to order. At the end of this project, we can get a security to home premises and make out daily life easier.	Practice-oriented	Title and project synopsis are acceptable
22	SITI HARYANTI BINTI HJ HAIROL ANUAR	NURUL SYAHIRA BINTI ASHARI	Development of RFID safe box with biometric access using microcontroller	With Fingerprints and using arduino	Practice-oriented	Title and project synopsis are acceptable
23	SYED MOHAMAD SHAZALI BIN SYED ABDUL HAMID	MUHAMMAD AMAR FADLAN BIN AHMAD FOZI	Development of An Automated Mini Fish Pond using Cloud Based Application	This project would develop an automated fish pond servicing system which will help with remote fish feeding and monitoring activities. A series of sensors and actuators will be read and control semi-autonomously via apps with cloud based application.	Practice-oriented	Title and project synopsis are acceptable
24	SYED MOHAMAD SHAZALI BIN SYED ABDUL HAMID	MUHAMMAD MUADDIB BAKHTIAR BIN MUZAFAR	Development of Demand Driven Irrigation System using IOT.	This project would develop an irrigation system for a farm with different types of plants. This system would timely monitor and report as well as controlling the soil moisture to optimize the use of water without compromising the watering need of different plants. A array of sensors and actuators will be integrated in an IoT based system to enable operator to remotely monitor the farm and achieve the system objective.	Practice-oriented	Title and project synopsis are acceptable
25	SYED MOHAMAD SHAZALI BIN SYED ABDUL HAMID	NUR AZREEN ATIKAH BINTI ZULKIFLEE	Development of IoT Based Garbage Monitoring System using Microcontroller	This project would develop a garbage monitoring system for a demand driven garbage disposal system. The system would identify the garbage bin status using an array of sensors and notify the operator remotely online. Some actuators will be used to keep the bin in good shape before the garbage collection done.	Practice-oriented	Title and project synopsis are acceptable
26	TS. DR. MOHD SYAFIQ BIN MISPAN	KUGAN A/L MORGAN	Development of Smart Power Electrical Appliances Monitoring using Wireless Sensor Networks	Conventional energy meter which we use in our households to measure energy consumption is an offline device, so it has to be monitored manually. But nowadays there are smart energy meters available in the market whose readings can be monitored from anywhere using the internet and not only energy consumption but we can monitor multiple parameters such as voltage, current, power factor, frequency, etc. on the laptop or mobile application. Nevertheless, currently available smart meters are only capable to monitor total energy consumption from the incoming live wire. In this project, we aim to develop smart energy monitoring for every electrical appliance installed in the household by using wireless sensor networks (WSN). WSN consists of several sensor nodes that are connected in closed networks which use to collect data and send them to a central server (i.e., sink) for processing. A sensor node will be installed on each electrical device. When the device is ON, the electrical parameters such as AC voltage, AC supply 2.2 SOFTWARE In this module, this project using Blynk application as well as the Website application for this project. Admin web page will contain and display the information like Login, Registration, Number of users registered to the app, status of the sensor, safe places near flood affected area where people can migrate and that places are shown on the map. The application will be used by the users who are register. After registration the user can login with username and password. And then user can access all facilities provided by application. Application is provided the information like current status of water level. The overall system consists of 3 main stages: 1) Hardware nodes 2) Ambulance travels at relatively high speed from the accident site to the hospital, or vice versa could potentially put other drivers in danger. Furthermore, an ambulance needs to arrive at the destination safely as fast as possible. Therefore, in this project, we aim to develop a traffic signal preemption system for ambulances using microcontroller. The preemption signal will be sent (i.e., from ambulance) to the incoming traffic light en route to the hospital or accident site by using long-range (LORA) communication. When the traffic light receives the preemption signal, the identification and authentication process will take place to ensure the authenticity of the preemption signal. The physical unclonable function (PUF) technology will be used to provide a unique identifier for the ambulance. The unique identifier is extracted from the inherent static random access memory (SRAM) in the microcontroller or also known as SRAM-PUF, located in the ambulance. The ambulance sends its unique identifier to the trafurcent, and active power will be measured. Subsequently, the collected data from each sensor node will be sent to the sink for further processing. The total power consumption can be computed in the sink. Additionally, the electrical device that consumed the highest power can also be identified. This information is visible to the user via mobile application (e.g., Blynk, MIT, etc.). Assembly Mini Cell Kit located at Industrial Control Lab does not have any means of monitoring system to monitor its condition in realtime. The objective of this project is to integrate hardware and software (Assembly Mini Cell with Raspberry Pi using Node Red software) to establish a real-time monitoring system. Sensors shall be allocated in numerous parts of Assembly Mini Cell Kit as the transmitters and Respberry Pi as the receiver. Node Red shall be programmed so that an IoT based system is established. The communication between Assembly Mini Cell and Respberry Pi can then be monitored through Web Site, Android Apps and e-mails.	Practice-oriented	Title and project synopsis are acceptable
27	TS. DR. MOHD SYAFIQ BIN MISPAN	MUHAMMAD ARIFF AMIR BIN ZULKIFLI	Development of Traffic Signal Preemption for Ambulance using Microcontroller	In order to complete a monitoring system, an alert triggering system need to be installed. The purpose of this triggering system, is for the person in-charge of the equipment to perform corrective measures effectively and timely. An algorithm shall be develop by using MQTT and backed with Node-Red programming. Assembly Mini Cell Kit is expected to communicate alert messages via an Android Apps (MQTT) and emails to the persons in-charge.	Practice-oriented	Title and project synopsis are acceptable
28	TS. KHAIRUL ANUAR BIN A RAHMAN	AMNI NUR ZAFIRAH BINTI ZURADI	Designing A Monitoring System for Assembly Mini Cell Kit by Using Rasperry Pi	Artificial intelligence techniques such as fuzzy logic will be used in the system.	Practice-oriented	Title and project synopsis are acceptable
29	TS. KHAIRUL ANUAR BIN A RAHMAN	NICOLAS ARULANDAM A/L JOSEPH SAGAYAM	Development of Alert Messages Algorithm For Assembly Mini Cell Kit by Using MQTT and Node-Red Software	Develop a neuro-based IoT smart home controller using artificial intelligence. Wireless brain sensor will be used for home appliances control and IoT integration for system monitoring and analysis.	Practice-oriented	Title and project synopsis are acceptable
30	TS. KHAIRUL AZHA BIN A AZIZ	MUHAMMAD HAFYXZ BIN KAMARULZHAM	Development of Neuro-based IoT Smart Home Controller using Artificial Intelligenc	Develop a wireless control and retrofit wheelchair system. Retrofit wheelchair system hardware will be developed using Dc motor and Arduino microcontroller. Android app for the wireless control will be developed using Android app developer such as MIT app inventor or Android Studio.	Practice-oriented	Title and project synopsis are acceptable
31	TS. KHAIRUL AZHA BIN A AZIZ	MUHAMMAD SYAFIQ BIN MOHKTAR	Development of Wireless Control for Retrofit Wheelchair System	Develop a data acquisition system for EEG sensor and Matlab thru Bluetooth connection. The system can display EEG signal on screen and the acquired signal can be used for medical application such as attention and meditation monitoring or epileptic detection.	Practice-oriented	Title and project synopsis are acceptable
32	TS. KHAIRUL AZHA BIN A AZIZ	ZAMRY BIN ZAKARIA	Development of EEG Data Acquisition for Medical Application	Objective: 1. To detect a range of 2 or more boules from a jack (a tools). 2. to measure a distance between 2 boules of a close range. 3. To decide which boule most near by system.	Practice-oriented	Title and project synopsis are acceptable
33	TS. MOHD ANUAR BIN ADIP	HAZRIE AL KHUSYAIRIE BIN YUSOFF	Development of measurement tools to detect nearest boule range based on IoT using microcontroller	Problem need to be solved : easier to deliver package/item in one place to another and password based system to secure the item Method: by using Arduino	Practice-oriented	Title and project synopsis are acceptable
34	TS. MOHD ANUAR BIN ADIP	NUR SARAH SHAHIRAH BINTI SHUHAIMI	Development of package delivery robot with password system by using arduino	In process industry such as petrochemicals or oil & gas industry, there are various type of non contact level transmitter. The most common non contact level transmitter such as ultrasonic transmitter and radar transmitter normally use to monitor and send real time level information signal to main controller. To avoid level transmitter accuracy performance out of acceptance range, normally there will be a periodical verification work to ensure that reading signal from the level transmitter still within the accuracy. This project aim to develop an automatic verification system that will be able to perform level transmitter verification for 5 points level measurement. This system also will generate an automatic verification report with information such as % of error and standard deviation. As a result, user will be able to plan replacement of level transmitter if verification report show that level transmitter performance is out of acceptance range.	Practice-oriented	Title and project synopsis are acceptable
35	TS. SHAHRIZAL BIN SAAT	AHMAD RASHIDI BIN ISMAIL	Development of an automted verification system for non contact level transmitter using microcontroller	One of a big issue for water provider in our country is a Non Return Water (NRW). This situation can be happen for several factor such as pipe leakage or crime. Because of this, it contribute big amount of annual losses to most of water provider in our country. This project propose to develop a low cost system for NRW monitoring and detection that will be able to predict and trigger an authority party. This project will use microcontroller as main controller that will process all signal feed from flow sensor located at a different main measuring point. Pattern of water consumption will be analyze at this different main measuring point. It also consist with IoT features that will be able to trigger an authority party if there any abnormal pattern detected.	Practice-oriented	Title and project synopsis are acceptable
36	TS. SHAHRIZAL BIN SAAT	HAZIQ BIN HANAFI	Development of a Non Return Water (NRW) monitoring and detection system using microcontroller	In Industrial Revolution 4.0 technology, most of factory going to upgrade the facility to align with IR4.0. One of element is smart sensor and actuator at automation system. This project is proposed to improved existing conventional sensor and actuator to become and act like a smart sensor and actuator by manipulating a data process by Programmable Logic Controller (PLC). Maintenance staff will be notify when related sensor or actuator working life span is almost reach the limit that provided by manufacture. All information for sensors and actuators will be display at Human Machine Interface (HMI). So, it expected that this features will be able to avoid unplan shutdown due to machine breakdown because of sensor or actuator failure.	Practice-oriented	Title and project synopsis are acceptable
37	TS. SHAHRIZAL BIN SAAT	MAIZATUL HANIM BINTI MUHAMMAD KHAIRUN	Development of Modular Production System (MPS) Preventive Maintenance Monitoring & Triggering System using Programmable Logic Controller (PLC)	This project investigates the properties of light intensity when a sensor is exposed to humidity. A single side polished plastic optical fiber was fabricated using a chemical etching technique and used as a sensor to detect changes in humidity level. The LED, photo detector, and LCD display will all be powered by a microcontroller. With the successful completion of the project, the output voltage measurement is inversely proportional to the increasing humidity level.	Practice-oriented	Title and project synopsis are acceptable
38	TS. SITI HALMA BINTI JOHARI	MOHAMAD BASIR BIN BAKAR	Development of single side polished plastic optical fiber intensity-based sensor for humidity detection	This project investigates a presence of alcohol (ethanol) by using a sensor. This alcohol sensor will be used and operated in a continuous method. A microcontroller is used in this project to activate the sensor and implement the reading or control the circuit algorithm. With the perfect completion of this project, it is suppose to be able to demonstrate the presence and sensitivity of this optical fiber-based sensor to alcohol vapors.	Practice-oriented	Title and project synopsis are acceptable
39	TS. SITI HALMA BINTI JOHARI	MUHAMMAD FIRDAUS AMEEN BIN ANUWAR	Development of optical fiber sensor for ethanol vapors detection	This project investigates the properties of light intensity when a sensor is exposed to humidity. A double side polished plastic optical fiber was fabricated using a chemical etching technique and used as a sensor to detect changes in humidity level. The LED, photo detector, and LCD display will all be powered by a microcontroller. With the successful completion of the project, the output voltage measurement is inversely proportional to the increasing humidity level.	Practice-oriented	Title and project synopsis are acceptable
40	TS. SITI HALMA BINTI JOHARI	NURUL HASANAH BINTI IBRAHIM	Development of double side polished tapered plastic optical fiber sensor for humidity application	This project investigates the driver consciousness while driving by evaluating the wether the driver is sleepy or not. A camera will be used to capture the eye condition of the driver. Microcontroller is then use to process the information and alert give an alert to the driver if sleepiness is detected. Upon completion of this project, it is expected that an accident due to driver sleepiness can be reduced.	Practice-oriented	Title and project synopsis are acceptable
41	TS. TG MOHD FAISAL BIN TENGGU WOOK	MUHAMMAD SHAHEER BIN MOHD ZAID	Development of Driver Monitoring of Sleepiness Using Microcontroller	This project proposed a flood warning system that requires attention to three factors in order to develop Flood Monitoring System Using IoT and Wireless Sensor Network. Basic factors include the hardware and software, and disseminated Flood warning information. While automated flood warning systems are often surprisingly inexpensive to implement, the primary factor determining cost for any such system is the number of page site locations.OBJECTIVE I. Detect water levels when it rains before a flood occurs ii. Control a place to prevent flooding. METHODOLOGY 2.1 HARDWARE In this project, some hardware is used that are Microcontroller, sensors, components required for power supply. The Hardware collects the water level to detect the levels of the flood. The hardware consists of Wi-Fi enabled controller which connects to the server and allows to send the notification to smartphone through internet. I. Microcontroller – Node MCU ESP 8266 ii. Sensors - Water Level measurement iii. Power Supply – DC power supply 2.2 SOFTWARE In this module, this project using Blynk application as well as the Website application for this project. Admin web page will contain and display the information like Login, Registration, Number of users registered to the app, status of the sensor, safe places near flood affected area where people can migrate and that places are shown on the map. The application will be used by the users who are register. After registration the user can login with username and password. And then user can access all facilities provided by application. Application is provided the information like current status of water level. The overall system consists of 3 main stages: 1) Hardware nodes 2) Cloud Architecture 3) Front end clients (mobile app).	Practice-oriented	Title and project synopsis are acceptable
42	TS. TG MOHD FAISAL BIN TENGGU WOOK	NUR AINA INSYIRAH BINTI ABD LATIFF	Development of Flood Monitoring System with IoT		Practice-oriented	Title and project synopsis are acceptable

43	WAN NORHISYAM BIN ABD RASHID	NELLY NOFFIANTI BINTI SABUDI	Development of Smart Aquaponic System for Indoor Farm Solution	This project is to investigate a better farming solution for indoor beside maintaining the circulation between fish and plant and making sure the water remains unpolluted by turning waste from fish into nutrients for plants. A smart aquaponic system which is a type of fish farming that uses the waste produced by fish to supply nutrients to hydroponic plants, or plants that grow without the use of soil has been chosen for the indoor farm by implementing the green technology. A microcontroller will be used to communicate with multiple sensors that soon will be used in the smart aquaponic system. With the successful completion of the project, even though facing with water quality limitation such as pH and temperature, it is expected that this project is able to create a better farming solution and decrease water pollution's percentage by using green technology equipment.	Practice-oriented	Title and project synopsis are acceptable
44	WAN NORHISYAM BIN ABD RASHID	NUR AZIMAH BINTI AZIZ	Development of LoRa Based Wireless Weather Station for Perbadanan Sg Melaka.	This project is to develop a LoRa Based Wireless Weather Station by monitoring the parameters such as temperature, humidity, pressure, rainfall and light intensity using sensors. The data will be monitor using LoRa which is a long-range, low-power and low-bitrate wireless technology system that supports the IOT devices network. The receiver will collect data from the sender and uploads the data to the server. This project will use Arduino. It is expected the output that will display is accurate.	Practice-oriented	Title and project synopsis are acceptable
45	WAN NORHISYAM BIN ABD RASHID	SYAZWANI SAMIRAH BINTI CHE SOH	Development of Smart Dial Gauge for QC Check in CTRM Sdn Bhd.	The project's goal of this project is to regulate data transmission using an ESP32 microcontroller. This ESP32 has Bluetooth connectivity, which is utilised to send accurate data between both the microcontroller and the PC. The data entered in Excel is saved as an xlsx file. The method that we used Designing Hardware Circuit. To secure the dial gauge, a simple circuit was developed utilising a 47K resistor. A push button with 10KΩ were used. After that, the designed circuit is linked to the ESP32 for programming. Because the Bluetooth module is already included into the ESP32 Microcontroller, an extra Bluetooth module is not required. This project used two Software which is Arduino ide software and CoolTerm software. This project is designed to wirelessly send data from a dial gauge to Microsoft Excel. Because many industries still utilise hand-operated ways to do measurements and collect data, this initiative is being carried out. This is a challenge that CTRM is dealing with, and it has a significant impacturent, and active power will be m	Practice-oriented	Title and project synopsis are acceptable
46	ZULHAIRI BIN OTHMAN	HARITH ARSHAD BIN MOHD SABBERI	Development of Automatic IOT-Controlled Rechargeable Fan System	This project aims to develop a control system to detect the battery level of a rechargeable fan and the ambient temperature. The system will recharge the fan automatically and also turns on the fan when a person is near and temperature is hot. A microcontroller is used as to collect sensors data, control all devices and transmit data to apps on the system's status.	Practice-oriented	Title and project synopsis are acceptable
47	ZULHAIRI BIN OTHMAN	MOHAMMAD SYAFIQ BIN MOHAMMAD IRWANSHAH	Development of home water quality monitoring system with IOT	This project aims to detect water quality of home water filter using microcontroller and IOT. If the system detects unacceptable readings, the home owner and filter service provider will be alerted through IOT and apps. Primary water sensor used is to detect dissolve solids in water.	Practice-oriented	Title and project synopsis are acceptable
48	ZULKARNAIN BIN ZAINUDDIN	NUR HANANNIA BINTI MARHAUM	Development of Hand Signal using Camera for Disable People	Gestures are some forms of actions which a person perform gesture in order to express information to others without conversation. This project was carried out to study the hand signal using web camera and study the efficiency of hand signal. The proposed project will function to help disable people when there is no observation from other people especially during emergency. Disable people will perform hand gesture in front of web camera to ask for something such as hand signal.	Practice-oriented	Title and project synopsis are acceptable
49	ZULKARNAIN BIN ZAINUDDIN	WAN MUHAMMAD IRFAN BIN AHMAD AZLAIDI	Development of Object Detection using Camera for Security and Surveillance System	Object detection is a computer technology related to computer vision and image processing that deals with detecting instances of semantic objects of a certain class such as humans, building or cars in a digital images and videos. The system will detect any object and person that enter the building it will look for the visible dangerous/sensitive material attached or being carried by the person. It will trigger the alarm when the system detected any dangerous object being carried by the person or being attached to the person.	Practice-oriented	Title and project synopsis are acceptable