No.	SV Name	Student Name	New Title After Moderation	Synopsis	ETAC	MODERATION REVIEW RESULT
1	AMAR FAIZ BIN ZAINAL ABIDIN	AIMAN BIN BUANG	The Development of an IoT-based Automation System for Pet- Hotel Management System	The objective of this project to create an automated system or Pet-Hotel Management System for: 1) Recording the booking, check-in, check-out of the pets for the pet hotel. 2) Reminder for owner regarding check-in and check-out of the pets 3) provide pet information during the stay to the owner (such as how much pet eat, drinks, etc) 4) allow owner to interact with the pet (via live stream, VoIP and treat dispenser) 5) Reminder to the pet hotel staffs of daily routine (such as to clean the cage, restock drinking water and food, etc) 6) Security alerting and recording the presence of human (especially after prayer hour) and detect attempt of break-in The project consists of hardware that mainly built using Arduino/Raspberry Pi and Android App for data organization. The communication used via Internet based on IoT model.	Practice-oriented	ok
2	AMAR FAIZ BIN ZAINAL ABIDIN	AZIMAH BINTI ZAINAL ABIDIN	The Development of an IOT based Mosque Automation and Security System	The objective of this project to create an automated system for: 1) Displaying essential information related to the mosque (such as prayer times, total donation, tentative of lectures) 2) Turning ON/OFF electrical fixtures based on the prayer time & human presence 3) Security alerting and recording the presence of human (especially after prayer hour) and detect attempt of break-in The project consists of hardware that mainly built using Arduino/Raspberry Pi and Android App for data organization. The communication used via Internet based on IoT model.	Practice-oriented	ok

3	AMAR FAIZ BIN ZAINAL ABIDIN	MUHAMMAD SHAHRUL BIN KADID	Development of and Electronic Educational Board Simulator using Arduino for Sequential Digital Circuit Design	This project aims to create an electronic-based educational board simulator that able to simulate sequential digital circuit which consists of flip-flops and latches. Student can create sequential digital circuit connection on the board then click on the push button to simulate the circuit. The educational board than will produce the timing diagram based on the circuit connection done by the student and display it on a TFT LCD. Arduino Yun is used to process the input from the students and produce relevant output to the TFT LCD. The effectiveness of the project will be tested by a set verified questionnaires given to the target audience.	Practice-oriented	
4	AMINAH BINTI AHMAD	FATINI ARFAH BINTI MOHD AMRAN	Development of optical microfiber sensor for water purity using a tapering method	Fiber optics, commonly referred to as optical fiber, is a medium and system for transmitting information as light pulses over a glass or plastic strand. When light signals are transmitted through fiber optic cable, they bounce off the core and cladding in a sequence of zig-zag bounces, a phenomenon known as total internal reflection. Recently, optical microfiber sensors have received considerable research efforts due to their high sensitivity, detection speed, and ability to use harsh environments. The objective of this project was to use microfiber optics as a liquid sensor to detect water purity using a tapering method. There will be three samples of water purity is tested. Before each test, the fiber would be dipped in the samples and then measured. In a line graph, each measurement would have different results. The experiment's findings will be described in terms of sensitivity, correlation, and coefficient of determination of the graph, all of which are completely dependent on the water purity concentration and light source.	Practice-oriented	Ok

5	AMINAH BINTI AHMAD	MUHAMMAD AZAMI NAZHAN BIN MUHAMAD ZAHIR	Cooperative study for power spectral towards different taper optical microfiber for sensing purpose	Fiber optics, commonly referred to as optical fiber, is a medium and system for transmitting information as light pulses over a glass or plastic strand. When light signals are transmitted through fiber optic cable, they bounce off the core and cladding in a sequence of zig-zag bounces, a phenomenon known as total internal reflection. Recently, fiber optic sensors have received considerable research efforts due to their high sensitivity, detection speed, and ability to use harsh environments. The objective of this project was to use a fiber optics subclass known as microfiber as a sensor. The sizes of the taper microfiber may produce different values of transmitted power, which leads to the sensor's performance. Therefore, different sizes of taper microfiber will be used as a sensor to define the sensing performance. At the end of the project, the best size of taper microfiber is developed and performance tremendously as a sensor.	Practice-oriented	OK
6	AMINAH BINTI AHMAD	MUHAMAD YUSOF HEIRY YANTO BIN MASRUPI	Study on different tapering sizes based on time consumption of optical microfiber for an optical sensor	Fiber optics, commonly referred to as optical fiber, is a medium and system for transmitting information as light pulses over a glass or plastic strand. When light signals are transmitted through fiber optic cable, they bounce off the core and cladding in a sequence of zig-zag bounces, a phenomenon known as total internal reflection. Recently, fiber optic sensors have received considerable research efforts due to their high sensitivity, detection speed, and ability to use harsh environments. The objective of this project was to study the best taper microfiber used for the sensor. The taper microfiber is developed in different tapering sizes where the time consumption may differ as the main parameter observed. Furthermore, the tapering time may produce a different condition of microfiber, which leads to determining the sensor's performance. At the end of the project, the best taper microfiber size is developed using the proper time consumption. This microfiber is then used as a sensor to determine the performance	Practice-oriented	OK

7	AMINAH BINTI AHMAD	NUR HANIS SURAYA BINTI HASBULLAH	Development of optical microfiber sensor for Carbon dioxide in different concentrations using a tapering method	Fiber optics, commonly referred to as optical fiber, is a medium and system for transmitting information as light pulses over a glass or plastic strand. When light signals are transmitted through fiber optic cable, they bounce off the core and cladding in a sequence of zig-zag bounces, a phenomenon known as total internal reflection. Recently, optical microfiber sensors have received considerable research efforts due to their high sensitivity, detection speed, and ability to use harsh environments. The objective of this project was to use microfiber optics as a liquid sensor to detect Carbon dioxide (CO_2) using a tapering method. There will be three samples of different concentrations of CO_2 tested. Before each test, the fiber would be dipped in the samples and then measured. In a line graph, each measurement would have different results. The experiment's findings will be described in terms of sensitivity, correlation, and coefficient of determination of the graph, all of which are completely dependent on the CO_2 concentration and light source	Practice-oriented	ok
8	DAYANASARI BINTI ABDUL HADI	MAZLIN JAZMIE BINTI MAZMIHAN	Development of Unfitted Driver Warning System Using Electrocardiogram (ECG) Sensor with IoT-based	The IoT-based Unfitted Driver Warning System is develop to give a warning to an unfitted driver while driving by monitoring the driver's ECG. An ECG sensor will be placed at the seat of the driver to monitor the driver ECG and an Arduino is used as a microcontroller together with Espressif (ESP) that can connect to the internet to send massage or notification to the caretaker of the driver. The ECG reading help to measure the driver's condition while driving and instantly alert him by seat vibration to make him conscious. The expected output of this project is to alert or warn the unfitted driver while driving and can reduce the chance of accident to happen.	Practice-oriented	ok

	Name	Supervisor	Title	Description	Category	Status
9	DAYANASARI BINTI ABDUL HADI	AHMAD FIRDAUS BIN MOHD RASDI	2.Development of Personal Emergency Alert System using Electrocardiogram (ECG) Sensor with IoT-based	IoT-based Personal Emergency Alert System is a develop system to give notification to the caretaker for urgent attention action. This system is build based on ECG sensor that detect the irregular ECG rhythm and send massage or notification to the caretaker for further action. An Arduino is used as microcontroller and together with Espressif (ESP) that connect the system via internet. The ECG reading help to measure a person health and instantly alert their caretaker for urgent action to be taken. The outcome of this project is to alert the caretaker for emergency action in order to closely monitor unhealthy person from far	Industry-based	ok
10	DAYANASARI BINTI ABDUL HADI	FAIZAH BINTI MAHMUD	Development of IoT based Student Attendance with Temperature Solution using Thermal Imaging sensor	The project is design to take the attendance of a student in a class via QR code generated from the android application. A thermal imaging sensor is use to scan the QR code for the attendance together to capture the temperature of the particular student. An OTP number will be sent to the registered hand phone number for verification purposes. No direct contact to the device is involved. Real time clock in and temperature will be displayed on the screen. Attendance report available at any time so that lecturer able to manage the attendance. The project use Arduino as a microcontroller that can connect to the internet to send notifications to the user. This project will provide a contactless attendance system together with temperature solution that suitable during the pandemic situation.	Practice-oriented	ok
11	DAYANASARI BINTI ABDUL HADI	SYED AHMAD FAIQ AMSYAR BIN SYED WAHID	Development of Adjustable Stand for Temperature Monitoring using Microcontroller	This purpose of this project is to develop an adjustable stand that can move upward and downward based on the human height. This project will be using Infra-Red (IR) sensor to detect human forehead and DC motor will be used to move an aluminum rod upward and downward. Arduino/raspberry/nodeMCU will be used as microcontroller. This project provide a contactless to the device during this pandemic situation and it also cater problem for disable person who are using wheelchair as their height is not same as the standing person.	Practice-oriented	ok

12	NUR ALISA BINTI ALI	MUHAMMAD FIKRI BIN MOKHTAR	Development of Automated Face Mask Detection and Thermal Screening	In this project, student need to develop an automated detection system for wearing a face mask and monitoring their body temperature for this project. After that, the automatic temperature checking system would be activated, and the sanitation system would be turned on. Finally, the proposed system provides an audio/voice output regardless of whether a face mask is present or not, as well as the person's body temperature, among other things.	Practice-oriented	ok
13	NUR ALISA BINTI ALI	DZAKI DZIAUDDIN BIN SABARUDDIN	Development of Autonomous Wireless Mesh IoT Hydroponic system	In this project, student required to develop a control and monitoring system for a hydroponic agriculture system that is based on the internet of things. Wireless mesh networking will be used to collect sensor data between nodes and send it to an IoT platform.	Practice-oriented	ok
14	NUR ALISA BINTI ALI	MUHAMAD HAKIMIE BIN HUSSIN	Development of Long Range Early Flood Warning Systems on Internet of Things	In this project, student need to develop an early flood warning system with long-range communication based on the LoRa network. The system will monitor the level of river water and send data to other node devices via LoRa, allowing it to be used in conjunction with the Internet of Things technology.	Practice-oriented	ok
15	NUR ALISA BINTI ALI	MUHAMMAD NURHALIM BIN AHMAD HASNI	Development of Wireless Ad-hoc Mobile Traffic Light	In this project, student need to design and build a set of portable mobility traffic lights for use on a construction site that is in the middle of a construction project. This traffic light will be equipped with sensors and LoRa communication in order to synchronise the control of traffic conditions.	Practice-oriented	ok
16	DR. HASLINAH BINTI MOHD NASIR	AMIRAH NAKHLIS BINTI OZALI	Development of Virtual Reality Zoo for children education using unity platform	The application of virtual reality (VR) in education is growing rapidly. During this pandemic, children is unable to involve in any student tour for outdoor activity. Hence, this study proposes a virtual experience to the children using a VR mobile based application. The application will provide an interactive view of 3D environment of real animal. An android based mobile application developed using unity platform which provides an interactive view of 3D environment of real animal.	Practice-oriented	OK
17	DR. HASLINAH BINTI MOHD NASIR	AMIRUL AIMAN BIN LOKMANUL HAKIM	Development of Android based Post Stroke Rehabilitation through IoT platform	Mobile application provides high beneficial for rehabilitation especially who in post-stroke recovery process. Thus, this study proposes a mobile based for post stroke rehabilitation that are portable and easy to use. Tensorflow will use for pose estimation where machine learning model will estimate the pose of a person trough key body joints detection. An IoT platform will be integrated for personal doctor of the post stroke patient could monitor their recovery progress	Practice-oriented	OK

18	DR. HASLINAH BINTI MOHD NASIR	NUR AISHAH BINTI JOHA	Development of SIDS detection through Breathing signal using deep learning approach	Respiration detection is used to predict the physiological state of the human body. Sudden Infant Death Syndrome (SIDS) is a sudden death that often occur with the infant. Thus, this study proposes the used of deep learning approach to detect for any abnormalities in breathing to avoid SIDS. A vital sign simulator will be used an input for breathing signal. Deep learning techniques will be applied for any abnormalities detection.	Practice-oriented	OK
19	DR. HASLINAH BINTI MOHD NASIR	MUHAMMAD MU'IZZ BIN ZAKARIA	Development of translator of ASL sign language using deep learning approach	There a thousands of languages in the world however, the use of sign language is less and it is difficult for deaf and verbally impaired people to communicate with the others. Hence, this study proposes to develop smartphone based of sign language translator. Transfer learning was used to recognise the language sign gestures. The apps will produce its translation through text and audio.	Practice-oriented	Ok
20	DR. HASLINAH BINTI MOHD NASIR	MUHAMMAD AMIR ZAHID BIN ABD RAZAK	Development of Fall Detector using nodemcu for elderly people	Elderly and some of disability person require 24hours monitoring. Thus, fall detector is needed to monitor those who are left alone. This project is using nodemcu esp8266 and accelerometer sensor to detect falling person. The system will send notification to someone closer to help them.	Practice-oriented	ok

| 21 | VIGNESWARA RAO A/L GANNAPATHY | MUHAMMAD IZZAT BIN SHAH BANI | Development of a IoT Based Smart Guard Security System (eSmartGuard) using Near-Field Communication Technology | eSmartGuard system is developed to improve the safety level of the people and assets in universities, companies, or any organization by assisting the security personnel to patrol and performs their duty efficiently. The eSmartGuard NFC tags are installed at multiple points along the patrolling routes with unique Identification (ID) which identify different locations/points or routes. The guards will patrol according to their planned routes and records their arrival by scanning the NFC tagged checkpoints with eSmartGuard reader (Smartphone). The system is connected wirelessly to its cloud database on the internet. In line with current trend in technology where information are accessible at the fingertips. eSmartGuard mobile application provides convenient access to system efficiently. Once the NFC tags are scanned, then the information will be transmitted to cloud database. These information (i.e. location/point scanned, time, date, guard ID) are retrievable remotely via mobile device and computer. The reports are available in the form of duty, weekly, monthly and yearly basis for analysis and continual improvement. An important value added (or feature) of this system is real time incidents detection or emergency events with instant notification to authorized personnel. eSmartGuard system is able to help the organization to provide excellent and efficient implementation of standard operating procedure (SOP) and improve the security of the assets and premises. | Industry-based | OK |

| 22 | VIGNESWARA RAO A/L GANNAPATHY | MOHAMAD SYAHMEZAN BIN AMAT | Development of An Intelligent Portable Road Construction Traffic Light Using Microcontroller to be used at Road Construction Sites | The road construction safety traffic light system is designed to replace a manual traffic control on a road construction sites. This device can replace one or both flaggers during the two or more-lanes closures on the event of a road construction. The road construction safety traffic light system is considered one of the best devices in work zone traffic flow control systems. The device is a portable traffic light unit which can be best utilized in controlling traffic flow in a road construction site for long term or short-term lane closures and to control two-way traffic in a single lane. By implementing new technologies in automating traffic flow in road construction site could possibly eliminate the usage of a conventional flagman at all times. The road construction safety traffic light system is a practical solution to solve problems which contribute towards hazards at road construction site and to be in line with the road safety regulation which is taken into granted by the contractors. The automated portable traffic light system can reduce direct costs in manpower utilization and increase safety for the road users and construction workers by eliminating the need for a human flagman. This system is applicable for public and privately funded road construction projects that require overnight or 24-hour traffic control as well as in different weather conditions. | Industry-based | OK |

| 23 | VIGNESWARA RAO A/L GANNAPATHY | AHMAD SHAH ASHRAF BIN MAT NORDIN | Development of IOT Based Smart COVID-19 Checkpoints System using Microcontroller in Shopping Complex | While the majority of shopping malls or theme parks are open, the Ministry of Health of Malaysia sets limits regarding how many people are allowed to enter. The problem is that some shopping malls or other premises use tags given to customers whether in the form of a bracelet or some piece of laminated paper with a number on it to keep track of the number of people inside the store. The tags then are recycled to be used by another customer. We believe that this procedure is not hygienic and can potentially spread bacteria and viruses especially covid 19 through the tag. Other than that, some people also try to skip the checking phase before entering a premises which also can cause the spread of covid 19 even further. Also, the guard that enforce covid guidelines sometimes are not at their post as they have some other order that more important to do. The objective of the system is to develop a reliable system that can keep track of the number of people entering a premise without using tags and prevent the area from overcrowding. Also have a system that check if the person body temperature is normal before letting them enter which will lower the risk of spreading Covid-19. An LED as indicator and servo motor is also connected so that when the maximum number of visitors is reached, the servo motor will be activated to close the doors to prevent visitors from entering the mall and this will remain until the number of visitors is reduced than the maximum number. | Industry-based | ok |

24	VIGNESWARA RAO A/L GANNAPATHY	SIVA SUVASHINI A/P ULAGA NATHEN	Development of an Intelligent Attendance Recording System using RFID Technology	University is one of educational institution that uses manual method in recording the attendance which is by writing name on paper. Attendance is usually done on paper which might lead to mistakes. In general, manually documenting student attendance, especially in big classrooms, may be difficult and time consuming. There are a few new technologies that may be used to track students' attendance, such as bar code and fingerprint systems, however they all require a lot of upkeep and are highly expensive. Data may be correctly captured and preserved using a portable computer aided system at an inexpensive cost, avoiding a time-consuming difficulty. So, in this project, Arduino and the RFID MFRC522 Module to create an RFID -based attendance system. Each student is given an RFID card as an identification card, and their attendance is recorded when they touch their card to an RFID reader. The objective of this project is to design and build a RFID reader with data storage for the purpose of recording students' attendance. The system is also designed to save the time as the classroom with larger number of students consuming more time for recording their attendances.	Industry-based	ok
25	DR. VIGNESWARAN NARAYANAMURTHY	URMILAA A/P APPAROO	Development of smart Infant car seat using a microcontroller	The system will check the temperature of the car if too hot for the baby, pressure sensor to ensure baby is on the car seat, it will send a reminder text to parents of the child's situation and call the emergency contact if not back after some time.	Practice-oriented	ok

26	DR. VIGNESWARAN NARAYANAMURT HY	NUR FATIN NAJIHAH BINTI MOHAMAD HAIREZAL	DESIGNING A DOORBELL WITH TEMPERATURE DETECTOR AND AUTOMATIC SANITIZER DISPENSER USING ARDUINO	PROBLEM TO BE SOLVED To solved a problem that can easily detect temperature before entering any place and easily dispense sanitizer because nowadays due to Coronavirus people tend to forget to sanitize their hand. OBJECTIVE To successfully design an easily detectable temperature doorbell using ARDUINO To successfully design an automatic dispenser using ARDUINO To measure the successfulness of this project in order to make life easier PROPOSED METHOD To proposed a method that helps people during Coronavirus phase to stay alert by combining a project of CORONAVIRUS DOORBELL and AUTOMATIC DISPENSER. EXPECTED RESULT To address the desired knowledge, skills, and behaviour that can be gain in order to make this project successful by studying more depth about the function of ARDUINO which is the main component that combines both output in this project. Therefore, the expected result in this project is to successfully design a detectable temperature at the doorbell and also automatically dispense hand sanitizer.	Practice-oriented	ok
27	DR. VIGNESWARAN NARAYANAMURT HY	MUHAMMAD FAWWAZ SYAHMI BIN MOHD NASIR	Development of IOT based smart bird house using microcontroller	Mice are one of the main problems in oil palm and pineapple plantation. The main objective is to control the damage to oil palm and pineapple due to the mice using a natural solution. Barn owl is the most natural way to minimise the damage of the fruits. Currently users have some issue with the existing owl house, one of them are the user having problem with other birds nesting inside the owl house. Secondly user are having problem with the maintenance, which they don't know whether the owl is in the house bird or not. Lastly, some of the bird house is not occupied by the owl because they are not attracts to the house. By design a motion sensor that can detect the owl in the house, a sound that can attract the owl to the bird house and a camera that can monitoring inside the house. Based on the features that have been design, this project will overcome the problem.	Practice-oriented	ok

	28	DR. VIGNESWARAN NARAYANAMURTHY	MUHAMAD HAZIQ BIN MUHAMAD ZAKI	Development of mail box package notifier using Arduino	When the pandemic hit us, we allarerequired to stay home and work from home. The governmentadvices us to limit outdoor activities to control the spread of Covid-19. Thus, people have to do all the things like work from home, study from home and buy groceries online. Since then, the rise of online trafficincrease since the pandemic started and many people do online shopping. So the parcel thatthey order sent to their doorstep or mailbox. People not always aware that their package already being sent. So this project will help consumer awareness when their parcel arrived.	Practice-oriented	ok
	29	IZADORA BINTI MUSTAFFA	MOHAMAD RAHIMI BIN AYUB	Development of Respiratory Rate Monitoring System Using Arduino	Covid-19 has had a significant impact on many people's lives. Millions of individuals are infected, and million of people have died as a result of the disease. The virus infected the respiratory system severely. After the lungs have been inflamed, and the infection rate has increased. Various countries' healthcare systems are collapsing as a result of the increasing number of Covid-19 patients. More Covid-19 virus-related research, including healthcare technologies, are being conducted as a result of this. In this study a low-cost respiratory rate monitoring system is described. The system monitors the patients' breathing by using piezoelectric sensors. The sensors are placed on a chest belt with pre-determined size. As the wearer breaths in and out, the sensors measure the pressure of the chest pressing against it. The value obtained indicate the chest expansion and deflation. An Arduino Uno was utilized to read the signal acquired by the piezo sensors. It sends the data can be viewed on the serial plotter. The respiration rate per minute is calculated in the microcontroller and sent to the smartphone via ESP8266 Wi-Fi module to be displayed on the smartphone using Blynk app. The status of respiration rate i.e., normal and abnormal are displayed when the breathing is in these ranges. This work shows another modality to monitor Covid-19 patients.	Practice-oriented	ok

30	AMAR FAIZ BIN ZAINAL ABIDIN	NIK MUHAMAD ARIF FAHMY BIN NIK AB AZIZ	The Development of an Electronic Board Game of a Triple Triad Game for the purpose of Testing Kindergarten Student of Numerical Concept	This project aims to create an electronic-based educational board game which called Triple Triad with the purpose as educational kit to test Kindergarten students knowledge of numerical number. The electronic board is powered by Arduino Mega where the main difficulty of the project is to coordinate 9 RFID readers simultaneously. This is expected to be done by attaching each RFID reader to a Node MCU, then having all these NodeMCU behaves as Slaves for the Arduino Mega (Masters). The algorithm that conduct the game is embedded in the Arduino Mega. The project outcomes are measured by: 1) running different scenarios to test the output of the electronic board game which should be equivalent to the original game; 2) run an oral survey towards target audiences (kindergarten teachers and students) on the effectiveness of the game in aiding the learning process of the numerical concept.	Practice-oriented	ok
31	IZADORA BINTI MUSTAFFA	MUHAMAD SYAHMI BIN ZULKIFLY	Smart safety helmet for motorcycle users using Arduino.	A safety system for a motorcyle is described. A sensor placed on a motorcycle helmet is detects whether the helmet is worn and the buckles are strapped. If the sensor detects that either one is not in place, then it will send a signal to the system connected to the motor's engine which will not allow the engine to start. Also, the system is able to make small interactions with the user, such as reminder to put on the helmet and strap on the helmet. The system's architecture can be expanded further in the future to a fully functioning system in alerting the user regarding his own safety.	Practice-oriented	ok

| 32 | TS. DR. NORHASHIMAH BINTI MOHD SAAD | LUQMANULHAKIM BIN KHAIRIEL | Design of a Solar powered wireless security robot | Solar powered wireless security robot. Video surveillance systems are routinely used as means of security in open areas. However, such systems require access to electrical power grids, and providing the necessary cabling costs extra. The Solar powered Wireless Security Robot is equipped with solar panels and is capable of performing continuous video monitoring without the use of external power grids. This mobile robot is capable of automatic navigation and can maintain covert surveillance by changing its viewing position independently. In order for the security robot to change its viewing position, the solar panels have to be re-oriented toward the current position of the sun. The robot has a sun tracking system that allows it to do so automatically. The tracking system guarantees maximum influx of electrical power from the solar panels, enough for around-the-clock operation of the surveillance system and occasional movement. | Practice-oriented | ok |
| 33 | IZADORA BINTI MUSTAFFA | ASYRAF ADHAM BIN AHMAD RAZANI | Development of Physical fitness enticement through light interaction | This project aims to promote physical fitness in the community by engaging them to move through through light interaction. as it involves a light-emitting diode that encapsulates a pressure sensor. The lamp will be placed on the floor and it will be triggered whenever a person steps on the floor. This system also detects the heart rate and estimate the calories burned. These values are displayed on to the user to further encourage user to move. The adopts a microcontroller board, a LED system, and IoT. | Practice-oriented | ok |

34	TS. DR. NORHASHIMAH BINTI MOHD SAAD	SYAMIRRUDDIN BIN SAID RAMLI	Development of an Internet of Things (IoT) Fertilization System for Smart Agriculture	Fertigation is the process of injecting fertilisers, soil amendments, and other materials into soil that farmers normally require. Farmers might use an IoT-enabled fertigation solution to manage how many fertilisers are injected and in what amounts from afar. IoT smart farming solutions are a system that uses sensors to monitor the crop field and automate the irrigation system (light, humidity, temperature, soil moisture, crop health, and so on). Farmers can keep an eye on their fields from anywhere. In IoT-based smart agriculture, a system is built to monitor farmland using sensors that detect temperature, light, humidity, soil moisture, and other variables. Then, using an IoT Analytics Platform, automate the irrigation system and allow farmers to monitor their fields from anywhere. Integrating data, automation, and smart approaches into agriculture enables farmers to better care for their fields, mitigate risks, cut expenses, and boost profits.	Practice-oriented	ok
35	TS. DR. NORHASHIMAH BINTI MOHD SAAD	NURFARZANA BINTI MOHAMMAD SOFI	Development of a Smart Walking Stick for Blind People	The innovative Smart Walking Stick system can operate in user friendly manner, so that the blind person can walk independently without getting help from others. This system assists the blind to navigate on their own. In case of emergency situations such as high traffic density the location of the member is shared to the family members. The stick with sensors can detect the obstacles in front with ultrasonic sensors and it will produce various buzzer sounds depending upon the direction. The buzzer would alert the user. Furthermore, the sensors on stick can detect the water on ground and informed to the person by buzzer. This project can identify to track the user's location using GPS and send location to guardians using GSM. It also focuses on aspects that provide cost-effective and efficient navigational help.	Practice-oriented	ok

| 36 | TS. DR. NORHASHIMAH BINTI MOHD SAAD | THARUNAPRIYA A/P N RAVICHANDRAN | Design and Development of an IoT Solar Powered Smart Hydroponic Greenhouse | Hydroponics is a method of growing plants using mineral Nutrients solutions in Water without soil. Hydroponic allow for the crop to grow in the area where Growing traditionally has been a problem and the place where the soil is poor in terms of fertility and where water is minimum, where farmland is too expensive. The key objective of this project is to present low-cost solar-powered Smart Hydroponic Greenhouse. Hydroponics is a new agricultural production system in which the production takes place in a soilless medium using water. The hydroponic system requires controlled environment for the proper growth of plants, less chance of diseases and faster growth. It includes Automated Monitoring and controlling environmental parameters like temperature, humidity, PH, conductivity etc. The parameters are acquired by the respective sensors. If the values exceed or decrease their corresponding set points, the system starts the controlling action and tries to achieve its nominal value. The second part of the proposed design is the power supply. A proposed hydroponic greenhouse used Smart solar power unit which functions as primary power supply and will shift to conventional electrical energy if there is no adequate energy to run the automation for hydroponics system. So to provide primary supply as a solar power we have to monitor the solar panel as well battery voltage, According to the demand, it will switch over to the main supply (conventional grid). And using this technique we can grow plants like tomatoes, cucumber, peppers etc. without any harmful pesticides and fertilizers. | Practice-oriented | ok |

37	TS. DR. NORHASHIMAH BINTI MOHD SAAD	MUHAMMAD 'AMMAR BIN MAT LAZIM	Design and Development of a Patrolling Robot for Women Safety	Nowadays Women Safety is the biggest concern in many parts of the world. There is still a fear in alone areas for women as well as men. So here we propose a security patrolling robot using Raspberry PI. The system uses cameras and mic mounted on robotic vehicle for securing any premises. The robotic vehicle moves at particular path and is equipped with camera and sound sensors. It uses a predefined line to follow its path while patrolling. It stops at particular points and moves to next points if sound is detected. The system uses IR based path following system for patrolling assigned area. It monitors each area to detect any problem using combination of two HD cameras. It has the ability to monitor sound in the premises. Robot hears Any sound after area is quite and it starts moving towards the sound on its predefined path. It then scans the area using its camera to detect any human faces detected. It captures and starts transmitting the images of the situation immediately to the IOT website. Here we use IOT gecko for receiving transmitted images and displaying them to user with alert sounds. Thus we put forward a fully autonomous security robot that operates tirelessly and patrols large areas on its own to secure the facility.	Practice-oriented	ok