SV name	Student name	NEW TITLE FROM SV AFTER MODERATION	NEW CONTENT SYNOPSIS FROM SV AFTER MODERATION	ETAC	MODERATION REVIEW
AHMAD FAIRUZ MUHAMMAD AMIN	NUR 'IZZATI BINTI KHALID	Development an IoT Smart Farming Using MQTT Protocol Through Cost-Effective Sensors	In Agriculture, the demand for better crops is increasing rapidly and seeks proper management in the development of crop production for a better supply. The main objective is to implement the use of technology, i.e., IoT and sensors to increase the efficiency of agricultural systems by providing farmers with the means to use their time and interests to their full potential. This project presents a cost-effective custom-designed device using the concept of MQTT IoT protocol that transfers data through network systems and collects reports on soil conditions. It takes into consideration several factors that affect the health and living of a plant. These factors include pH, soil temperature and moisture, light availability, air temperature and moisture to reflect current plant conditions. In this project, the ESP32 will be used to take all sensor data and send it to the Raspberry Pi vi MQTT protocol that will be recorded in a database. Therefore, all data can be centrally monitored in one unit.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
AHMAD FAIRUZ MUHAMMAD AMIN	NOOR SHAFINA BINTI ABDUL GHANI	Design a Smart Car Parking System Using ESP32	Car parking is a major issues in modern congested cities of today. There simply are too many vehicles on the road and not enough parking space. This has led to the need for efficient parking management systems. Thus we demonstrate the use of IOT based parking management system that allows for efficient parking space utilization using IOT technology. To demonstrate the concept we use IR sensors for sensing parking slot occupancy. The system detects if parking slots are occupied using IR sensors. The system reads the number of parking slots available and updates data with the cloud server to allow for checking parking slot availability online. The ESP32 will control the complete process and also send the parking availability information to Google mysql so that it can be monitored from anywhere. In this Smart Parking System, we will send data to webserver for looking up the availability of space for vehicle parking. Here we are using mysql as Iot database to get the parking availability data. For this we need to find the mysql host address and the secret key for authorization. This allows users to check for available parking spaces online from anywhere and avail hassle free parking. Thus the system solves the parking issue for cities and get users an efficient IOT based parking management system.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
AHMAD FAIRUZ MUHAMMAD AMIN	FATHIAH BINTI BADRUDIN	Design an IoT-based Remote Asthma Patient Monitoring System Using ESP32	This project presented the development of a remote health monitoring system specifically for asthmatic patients. The purpose of this project is to develop a remote monitoring system that will enable clinicians to monitor asthmatic patients. Asthma is an inflammatory disease. It is one of the most prevalent chronic diseases. Asthma symptoms include wheezing, shortness of breath, chest tightness, and coughing at night or in the early morning. The remote asthma patient monitoring system has been proposed to collect health-related data from patients and electronically transmit it to healthcare providers for review and consultation. The proposed system will allow patients to measure their oxygen saturation (SpO2), heart rate, body temperature, humidity, volatile gases, room temperature, and electrocardiogram (ECG) via a variety of sensors, which will be displayed in an application. This information is subsequently transmitted to the physician, who may monitor the patient's status and recommend necessary actions. Multiple sensors were developed by employing an ESP32 microcontroller compatible with the Arduino Integrated Development Environment (IDE). The proposed system came up with the Asthma Tracker website for remote health monitoring. The website's features include the ability for both doctors and patients to register and log in to the website, and doctors can analyse patient reports and prescribe medication. There is also a video chat and phone call option for doctors to communicate with patients.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
AHMAD FAIRUZ MUHAMMAD AMIN	MUHAMMAD AIZAT BIN KHAMIS	Design and Development of a PC-based Web Application Firewall Using XAMPP	This prototype plugin comes with many advantages for security providing such as a password or sensitive data encryptions. This plugin might be useful for self-coding website systems that need protection from any attackers from trying to exploit the site with the bugs they're found on the website. There is various type of functions that will provide in this plugin, for example, monitoring access system with logged IP address and the path they visited, CSRF token, (brute force, SQL Injection, XSS Injection, LFI, XXE Injection) protection, malicious HTTP headers from user-agent, web shell detection, email validation, SSRF detection from URL input, managing file download to avoid Local File Disclosure and many more types of security will provide in this plugin. Applying this plugin might help other websites to minimize cyber-attacks to archive some sensitive data, defacements, or take control over the websites. This project is a type of plugin with backend PHP, MySQL system built with many types of functions to provide advanced website securities which will be on PC based. The plugin also will tell the administrator to use Content Delivery Network (CDN) if there are none on the site and will scan the SSL expiry from the website. So totally, the cyber-attack will be decreasing due to protection from the websites. So overall from this plugin, all attack possibilities will notify the administrator via email.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
DR SUHAILA BT MOHD NAJIB	HAMSAPRIYAVATY A/P MANICKAM	Estimation of leaf area measurement based on image processing technique	Leaf area has a large influence on the product crop, and a key index in crop growth and breeding practice. The objective of this study is to develop a simulation model of a spinach for leaf area estimation using an image processing algorithm. Sixty leaves with different shape and size of spinach species are selected for image acquisition and measurement. The software used for image processing and leaf area calculation is MATLAB. Experiments will be accomplished based on three steps which are Region-of-Interest (ROI) selection, edge detection and leaf area estimation. The leaf area which has been estimated using MATLAB software will be compared with the grid counting method to analyze the precision of the proposed algorithm.	Industry-based	Title and project synopsis are acceptable.
DR SUHAILA BT MOHD NAJIB	NURUL HANIS BINTI ROHAIMI	Development of Computer vision approach for road pothole detection	Potholes are formed due to wear and tear and weathering of roads. They cause not only discomforts to citizens but also deaths due vehicle accidents. The objective of this project is to design road pothole detection system based on computer vision technique. 500 of pothole images from the Kaggle.com will be gathered and labelled using an image annotation tool. All the labelled images will be set as training set and the remaining 20% of the labelled images are set aside as a test set. Object detection model used for this system is Single Shot Multibox Detection or SSD algorithm. This system is expected to produce high accuracy of detecting the road pothole.	Industry-based	Title and project synopsis are acceptable.

DR SUHAILA BT MOHD NAJIB	NASHA ATHILAH BINTI ZAINAL	Development of Sign language Interpreter using Computer Vision technique	To assist the social interaction of deaf and hearing-impaired people, efficient interactive communication tools is expected. Gesture recognition forms the basis in translating sign languages where gesture recognition plays a critical role in Sign Language Recognition (SLR). The purpose of this project is to provide a sign language interpreter to ease the interaction with the hearing-impaired person based on computer vision approach. The dataset from Kaggle.com will be used which consists of 37 different hand sign gestures (each gesture has 1500 images) which includes A-Z alphabet gestures, 0-9 number gestures and a gesture for space. All the labelled images will be set as training set. For the test set, Python OpenCV library will be used to capture sign gestures from computer's webcam. The images from the training set and test set will be compared and classified based on Convolutional Neural Network (CNN). The output of the system will predict the accuracy of the hand gesture captured by the webcam.	Industry-based	Title and project synopsis are acceptable.
LIM WEE TECK	CHAN YOKE LIN	Development of face mask detection system using vision system	Due to Covid-19, the government has made it compulsory for people in Malaysia to wear masks when in public since Aug 1 2020. However, there are still some who did not adhere to proper Covid SOP. The objective of this project is to develop a face mask detection system to help check if everyone always keep their mask on. Proposed method would be using vision system together with neural network for decision making. Expected that the system can identify people who are not wearing masks and highlight the situation to the proper authority.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
LIM WEE TECK	RAHMAN KAZI ASHIKUR	Development of Covid Patient Health Monitoring System in Quarantine using IoT	Covid Quarantine centres are now available in every country to make sure people who travels are really safe before allowing them to mingle with the local society. However, with the increasing number of cases, it is becoming difficult to keep track of all the quarantine users. The objective of the project is to develop a Health Monitoring System using IoT so that the quarantine users can update their own status regularly. Proposed method would be using some sensors to detect the users condition, record it to a database and some decision making algorithm (such as neural network) to help highlight specific cases. Expected that the system to be easily used by quaratine users with proper notification system to the related health department.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
LIM WEE TECK	MUHAMMAD HILMI BIN ZAKARIA	Development of User Database System for UTEM Silat Gayong Club	There are many Silat Gayong Society & Club in Malaysia. However, most did not have a proper database record of each users. And this may present a problem when practitioner change place or trainer. Because users may lie about their belt certificate and levels when they register. The objective of this project is to develop a web based registration system to keep track of proper database for the use of Silat Gayong Club. Proposed method would be using web based registration database. Expected to be first applied for UTEM Silat Gayong Club to test the systems workability.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
LIM WEE TECK	MU`IZZ AKRAM BIN MOHD SAPIE	Development of Car Plate Number Recognition System for Homestay using Vision System	The availability of homestays have increased tremendously over the last few years. Proper security systems is important for both homestay renters and homestay owners. In order to make sure only the correct renter is allowed access, the objective of this project is to develop a car plate number recognition system using vision system to only allow the correct car to enter the homestay premises. Proposed method would be using vision system to extract information from survailance images. Expected that the system can detect registered and unregistered car plate number.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
MA TIEN CHOON	MUHAMMAD HAZIM BIN MAZLAN	Development of smart body temperature recording system using RFID tag	PROJECT BACKGROUND AND DESCRIPTION This project is aimed towards employees and workers to access their company vicinity using the RFID tags while also having their temperature measured by the infrared thermometer. Basically, if there is an anomaly or an elevated reading of temperature (Symptom of Covid-19) then access for that specific employee would be denied. Also, the data received would be admitted towards the website of the company that monitor the time schedule and employee's temperature. PROBLEM STATEMENT Since the outbreak of Covid-19, premises had implemented the use of temperature checker in order to detect their employees' temperature for safety measure. However, this method provides temporary adjustment as it could only perform crudely given its basic function. In addition, this method lacks the ability to record and alert the premises of the employees' health. Hence, an improvement is long overdue given the circumstances. Therefore, a more thorough system is needed in order to further enhanced the system for a better work safe environment. OBJECTIVES Using the RFID to scan the card. Use the temperature sensor (infrared thermometer) Arduino to scan the body temperature. Send data (temperature) to the website. LANGUAGE Arduino IDE, MySQL, HTML, JavaScript. PROJECT HARDWARE Arduino UNO MKR1000, Temperature Sensor, RFID reader (card), LED, Relay	PRACTICE ORIENTED	Title and project synopsis are acceptable.
MA TIEN CHOON	MUHAMMAD ALIFAFIF BIN MOHAMMAD	Development of rooftop solar panel cleaning robot using Arduino	Project background This project is about to solve the problem statement and solving the problem in cleaning solar panel. As we know the solar panel had been use in a large sector around the world in improving the way in collect the source for the power of electricity that need be supply to people. We need to change the energy from sun into electric energy by using the solar panel. Problem statement The solar panel cleaning robots have been created in many countries as an example , Mirai Type 1 which created to cleaning the solar panel without water. But this robot only suitable to clean the large scale of solar panel, it not suitable for Malaysia or equatorial countries that hot and humid all year, their price must be expensive and most importance not suitable for cleaning the rooftop solar panel that had own degree of tilt on the rooftop It can prevent solar panel's owner to get any injuries if need to cleaning the solar panel manually when climb the roof. we need to rubbing the solar panel for make sure it really clean so cannot just splash water on solar panel Description Idea Hardware and Software In this project I will using the arduino as it brain for make sure it cheaper,motor driver,brush,water pump,ultrasonic sensor,motor for tying the handle strap and rechargeable battery. The strap I will attach at each corner of solar panel for make sure the robot got enough support from falling on a certain degree of inclination. This is for hardware. For the software I will use the arduino language . For water supply we just need to use the house water tap only Objective clean the rooftop solar panel Prevent the injuries of the owner Decrease the cost for owning the robot Protect the environment Simplifies the maintainance process	PRACTICE ORIENTED	Title and project synopsis are acceptable.

MA TIEN CHOON	MUHAMMAD SYAFIQ BIN YAAKOB	DEVELOPMENT OF SMART PLANTS WATERING SYSTEM USING IOT	PROJECT BACKGROUND AND DESCRIPTION Utilizing IoT (Internet of Things), we can water and monitor the plant in this system. We employ a variety of modules in this system, including an Arduino as the controller, a temperature sensor, a moisture sensor, a humidity sensor, and PH sensor. By being aware of all these possibilities, one can behave appropriately. We wired the system's water motor as our output for this project. Automatically, the water motor will turn on based on the sensor data assessed by various types of sensors. PROBLEM STATEMENT Everything can be managed and operated automatically in today's environment. In our country, plant monitoring is very important because they used to grow plants in controlled climates to get the best crops. Automating the monitoring and control of climatic conditions that affect the growth of plants and thus their yields. Automation is the process of controlling industrial machinery and processes to eliminate the need for human labor. In this article, we will discuss how plant watering and monitoring system technologies may deliver feedback to users via smart phones or laptops. The automated technology eliminates the need for human intervention, hence reducing error. By deploying this technology, farmers can simply monitor the system's efficiency using their smart devices. OBJECTIVES • Amplifying the sensor for watering process. • Using Arduino to control the system. LANGUAGE Arduino IDE, C++, PROJECT HARDWARE Arduino UNO, DC motor, PH, Moisture, Temperature, and Humidity Sensor	PRACTICE ORIENTED	Title and project synopsis are acceptable.
MA TIEN CHOON	MUHAMMAD ADIB BIN ABDUL RAHMAN	Development of Smart Home Automated Garment Rack Using IoT	Project background This project is focusing on the drying process especially the clothes that hung outdoor. Data to be monitored are temperature and humidity. This clothes rack will ease and reduce time for user to monitor their clothes especially the clothes were hung outdoor since the weather sometime can be unpredictable. It will notify the user about the weather and the humidity of the clothes remotely. It will move the clothes rack automatically depending on the weather that detected by sensor. For example if the weather is going to rain, the system will automatically pull in the rack into the indoor. Problem statement This project is focusing on the drying process especially the clothes that hung outdoor. Data to be monitored are temperature and humidity. This clothes rack will ease and reduce time for user to monitor their clothes especially the clothes were hung outdoor since the weather sometime can be unpredictable. It will notify the user about the weather and the humidity of the clothes remotely. It will move the clothes rack automatically depending on the weather that detected by sensor. For example if the weather is going to rain, the system will automatically pull in the rack into the indoor. Description Idea Hardware and Software The main device used are Arduino UNO for the brain of the system. The sensor are also used in this project such as rain sensor and temperature sensor. Other devices such as Dc motor are also used to move the garment rack. The sensor will detect the rain and temperature of surrounding and move the motor to retrieve the garment rack in and out. Objective • To identify the lack of manual and traditional garment rack in drying process. • To develop an automated garment rack that can work automatically and efficiently in different weather to dry the clothes. • To evaluate how the arduino work in controlling the garment rack in different temperature and humidity.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
TS. HASRUL 'NISHAM BIN ROSLY	NUR ALYSHA BINTI NORAZIZAN	Development of car ignition system based on facial recognition method using Raspberry Pi.	Cars are the main transportation in Malaysia. Most modern cars use keyless car keys where the radio signal found on the key is used as the car's ignition medium. However, this radio signal is easy to duplicate. To solve this problem, a car starter based on face recognition will be developed. This new car ignition system will use raspberry pi as the main circuit. By using a camera, owner/user face are recorded and stored in a database. When the car is to be turned on, the driver's face will be compared with the face in the database. If the faces are similar, the car will turn on while if different the buzzer will sound. Therefore, new methods in the development of car ignition systems will be created while reducing car theft in Malaysia.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
TS. HASRUL 'NISHAM BIN ROSLY	NASHA ATHIRAH BINTI ZAINAL	Development of car ignition system based on fingerprint recognition method using Raspberry Pi.	One of the causes of car loss and theft is due to the car's ignition system that uses keys. Although the latest cars use a key that contains a radio signal to turn on the car, it is still easy to duplicate. Based on this problem, a new concept based on fingerprint recognition to turn on the car will be developed. The system will use raspberry pi as the main circuit and will be connected to a fingerprint sensor along with the car ECU (Electrical Control Unit). The owner/user fingerprint will be stored in the database and will be compared when the car is to be turned on. If the fingerprint matches are the same, the car will turn on while if different, the alarm system on the car will sound. Hence, the new car starter concept using fingerprint recognition is able to improve the security system on the car in addition to preventing car theft.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
TS. HASRUL 'NISHAM BIN ROSLY	NURUL FATIMAH BINTI KHAIRUL ANNUAR	Development of an IOT based smart agricultural monitoring system by using Raspberry Pi	Agriculture is one of the sectors that generate national income. However, the inefficient monitoring system in this sector has resulted in losses in terms of time, money and energy due to lack of monitoring in this field of agriculture. To overcome this problem, IoT based smart agricultural monitoring system will be developed. Raspberry pie serves as the main component in this monitoring system. The temperature and humidity in the surrounding area, as well as the moisture level of the soil, are detected using a DHT22 and a soil moisture sensor. Then, the results are presented on a smartphone and a computer. Therefore, this new smart agricultural monitoring system will help farmers to obtain optimal outcomes based on efficient and effective monitoring.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
TS. HASRUL 'NISHAM BIN ROSLY	MATTHEW TIMA ENSIRIBAN	Development of driver drowsiness warning system using image processing and alcohol detector with R	Vehicle accidents caused by drowsy and drunk drivers are getting worse and worrisome. Despite high summons actions being imposed, an increase in accidents still occurs due to lack of awareness from drivers. Due to this problem, a drowsiness warning system with an alcohol detector will be developed. Raspberry pie serves as the main component in this system. Drivers can check their own alcohol percentage content through an alcohol detector on their own breath before driving. If the alcohol percentage is higher than the allowable level, a warning through the speaker will be given. In addition, a drowsiness warning system was also developed for drivers who have low alcohol levels but are drowsy and want to continue driving. By using image processing, the driver's face is recorded especially the movements on the eye area. If the driver's eyes are closed for a reasonable period of time, a warning using the speakers will sound. This loud noise can make the driver regain consciousness. Thus, the development of this new system can reduce accidents caused by drowsy and drunk drivers.	PRACTICE ORIENTED	Title and project synopsis are acceptable.

Supervisor	Student	Title	Synopsis	Category	Remarks
TS. NIZA BINTI MOHD IDRIS	AHMAD IRFAN BIN HARMAN	Development of Hostel Management System based on Android Application	The development of hostel management system is to make the management and monitoring of hostel more efficient and comfortable for student. This system is based on android application and hosting by cloud which is firebase and the framework used will be Flutter. The application will provide good interface to the student and make a good interaction between the data and the user. So that user can easily to know the information and news about the hostel and make the registration of the hostel with just using the phone. This application features included with some notification about the news of hostel, problem and reporting system and booking room system for registration hostel.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
TS. NIZA BINTI MOHD IDRIS	HAARIGHAAREN A/L GUNALAN	THE DESIGN OF IOT BASED IMMOBILIZE HEALTH CARE OBSERVING AND ASSISTANCE SYSTEM.	The IOT based paralysis patient health care system is a system designed to help the patient convey various messages to doctors, nurse, or his/her loved ones sitting at home or office over the internet. Wi-Fi Module using ESP8266 microcontroller, LM35 Temperature as (input), The RF module, Heart rate sensor, Gyroscope and Accelerometer sensor, LCD Display, Potentiometers, A buzzer will work as (output) and Blynk app will display what are the needs that the patients will ask for.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
TS. NIZA BINTI MOHD IDRIS	SHANGETHA A/P V MAHADEVAN	The design of IOT Automatic Hand Sanitizer With Water Level Sensor	Automatic hand sanitizer with water level sensor is a system to minimize human energy and to avoid multiple touches. This product can reduce spreading Covid-19 virus as it is contactless which using IR sensor, relay and sanitizer pump for pump out the hand sanitizer. Arduino Uno is used to give signal. Buzzer and LED are used in this product for showing that the sanitizer pump is activated and to alert low level of sanitizer. This product is connected to breadboard and also with jumper wires, 12 Volt Battery and Battery Clip. The suitable size of plastic bottle placed as hand sanitizer tank.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
TS. MOHD SAAD BIN HAMID	MOHAMMAD FIRHAD BIN ABU BAKAR	DEVELOPMENT OF VOICE-ASSISTED SURVEILLANCE SYSTEM FOR VISUALLY IMPAIRED PERSON USING SINGLE-BOARD COMPUTER	The purpose of home security is to ensure our safety in our homes. In the absence of auditory or physical contact, the visually impaired homeowner is limited to recognizing known people in their home, which puts their safety at risk. So, the main objective of this project is to develop a home surveillance system that can recognize predetermined faces and inform the visually impaired owner via an audio signal. The system also allows the visually impaired homeowner to access and operate the programmed device without the need for visual clues since users are guided through the application by a voice assistant.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
TS. MOHD SAAD BIN HAMID	NORISA SHAFIKA BINTI MOHD GHANI	Drowsiness detection and alerting system for drivers using microcontrollers	Due to the massive growth in traffic, road accidents have become a major concern. Drowsiness of drivers during the night is the leading cause of accidents. Fatigue and drowsiness are two of the most common causes of serious accidents. The only way to solve this problem is to detect tiredness and notify the driver. This project will be built using the Arduino Nano microcontroller, the Eye Blink sensor, and the RF transceiver modules. This will form part of a driver drowsiness detection and alerting system for drivers. The fundamental objective of this system is to use an eye blink sensor to detect the driver's eye movements, and if the driver is feeling tired, the system will send out a warning message via a loud buzzer alert.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
TS. MOHD SAAD BIN HAMID	MUHAMMAD HISHAM BIN AHMAD ASRI	Development of IOT-based LPG Gas Leakage Detection System Using System-On-Chip Module	Liquefied petroleum gas (LPG) is a popular fuel source commonly used in residential areas.Even though it is cleaner than wood or charcoal, the use of LPG also poses a threat caused by the leakage that may occur due to wear and tear of the parts involved in the setup. So the objective of this project is to develop a gas leakage detection module that is capable of informing the user about the leakage and reducing the risks of accidents caused by it. The method relies on a gas sensor and a system-on-chip (SoC) module that can quickly identify a gas leak condition. The proposed method also features a user alerting system via smartphone , which is helpful in notifying the person even when they are not around. The proposed system also enables the user to control the gas valve upon detecting the leakage.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
TS. MOHD SAAD BIN HAMID	MOHAMAD A'ARFAN BIN AZHAR	Development of Parking Monitoring System using IOT	The main purpose of this project is to assist the user in locating the vacant parking space. This enables users to locate vacant parking spaces in a timely and efficient manner.The proposed system consists of a website application that assists people in retrieving information on vacant parking spaces. The system will notify the user of the capacity of the available parking space. Moreover, the system will be equipped with ultrasonic and weight sensors that act as detectors that send data to the microcontroller in order to update the system for vacant space data collection. The proposed system helps users save time by checking the available simple via the website application on a smartphone or web-capable device.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
NURLIYANA BINTI ABD. MUTALIB	AMNI NAJIHAH BINTI ABD AZIZ	Development of an IoT Based Laundry Notification System with Rain Water Sensor for Clothline Using	Nowadays people always have problems to estimate the time taken when doing their laundry at home.Sometimes they forget to hang their clothes when the washing machine have completed.This project aims to develop an IoT based laundry notification by using arduino where this notification will notify user when their laundry have finish at home and also will have a rain sensor to detect the rain and it will have a mechanism to pull the clothes hanger to the coverd area.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
NURLIYANA BINTI ABD. MUTALIB	MOHD NASHRUL IKRAM B AHMAD GHAZALI	Development of an IoT Based Voice Command for Home control system Using Android Application	This project aims to use the voice recognition technology with arduino to control LED/light at home. Its implementation especially focuses on the needs of home automation to help the eldery or children.Implementing this system gives economically efficient mechanism to provide the eldery/children with a better environment at home.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
NURLIYANA BINTI ABD. MUTALIB	MUHAMMAD LUQMAN BIN JAMAL ABD NASIR	Designing of an IoT based selfregulate shoes dryer using Microcontroller	This project aims to use the temperature and moisture sensor with arduino to automatically set the time and temperature to dry the shoe. Its implementation especially focuses on the needs of shoe owner dry their shoe in a very optimize time.Implementing this system gives economically efficient mechanism to provide people with a better time for drying their shoe compared to the direct sunlight drying.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
NURLIYANA BINTI ABD. MUTALIB	PUYANESWARRAN A/L RAMACHANDRAN	Development of an IoT Based Selfwatering agriculture and plant monitoring system using Microcontrol	This project aims to develop an IoT-based system that monitors and maintains soil humidity using the arduino circuit. A water detector or soil moisture sensor detects the amount of water or moisture in the soil. The good use for this detector is to measure the moisture in soil so that you have a good idea when to water your plants. This system also will have a camera to monitor the plant from being stolen since nowadays several plant have high price. The data from the soil reading will be stored in the database.	PRACTICE ORIENTED	Title and project synopsis are acceptable.

Supervisor	Student	Title	Synopsis	Type	Comment
TS. NADZRIE BIN MOHAMOOD	KONG MEI LERK	Development of Smart Hand Sanitation System Using Arduino	This project is regarding the Hand Sanitation system and to include human temperature reading and monitoring system and controlling mechanism to handle the number of peoples/customers while entering the premises. This is to avoid the manual way of handling people, which will consume a lot of time and to avoid a long queue while entering the premises such as hypermarket or other high attractive spots. The entire system will capable of detecting peoples with COVID symptom through body temperature measuring mechanism and will alert and to avoid this kind of persons to enter the premises. While for those who free from a symptom will be allowed to enter the premises by unlocking the entrance and automatic sanitation system will take place. In this way, the number of peoples/customers entering the premises at one time could be control as well by setting the number of allowable value by the system. This will be realized by embedding the door locking/unlocking mechanism. Other additional features are monitoring system which will be fulfilled by software approaches.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
TS. NADZRIE BIN MOHAMOOD	ZULAIKHA BINTI JAMALLUDIN	DEVELOPMENT OF WEB BASED E-OUTING MONITORING SYSTEM FOR BOARDING SCHOOL USING Arduino	The goal of this project is to create a computer-based system that can efficiently handle the outing process of Sekolah Maahad Hafiz students. This system will make it easier especially for wardens to manage and track the student outing record. Besides that, this system will reduce the time needed trying to manage the student outing progress. Students can limit the amount of time they at the security post by simply scanning their RFID smart card reader, which is embedded in their student card to be permitted to leave school. System Development Lifecycle (SDLC) is chosen as the approach or method that will be used in developing the system. The SDLC strategy improves the chances of a successful system development effort. I expect to successfully develop a web-based system that can efficiently handle the Sekolah Maahad Hafiz outing process. Hopefully, this system will make life easier for the school's wardens, staff, and students by expediting the process and storing all information securely in a database.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
TS. NADZRIE BIN MOHAMOOD	MUHAMMAD HAKIM BIN MOHAMED HASSAN AL TOHAMY	Development of Smart Street Lighting using NodeMCU	Street Lighting is now necessary piece of urban and rural infrastructure, to promote a safe environment for pedestrians and drivers alike. Current practice, enormous electric energy is consumed by the street lamps which are automatically turn on and off based on surrounding light condition whether is it dark or bright. This is the huge electrical energy waste and should be changed. The proposed solution through this project is just to turn the street lamps on whenever where there are pedestrians or/and vehicles are presents and will be turn off to reduce power where there is no one. This will be executed by modelling the street light by LEDs, IR sensors to detect the present of an object, while LDR sensor is to distinguish the level of light whether it is necessary to turn on the light or otherwise. Besides, to further decrease the electrical consumption level, the proposed system also capable to control the intensity of the lamps depending on the distance of the object from the lamp itself before it gradually turn off. Not only focusing on hardware implementation, this project will also integrate with the software component where Thingspeak cloud database will be introduced for monitoring purpose, such as total electrical consumption for each lamp, lamps condition whether it is functioning well or not. This will make the maintenance work become easier. For data transmission purpose, several suitable components will be embedded together to let the entire system comprise of hardware and software components come into work.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
NOOR MOHD ARIFF BIN BRAHIN	MUHAMAD AZIM HAMZI BIN AZAHA	DEVELOPMENT OFSMART WEATHER MONITORING SYSTEM USING IOT	We cannot predict the weather, even though we have a weather prediction every night that tells us what the weather will be like the next day. Thus, with the help of a weather detection equipment, it will notify the user of a live weather update via a notification on their smartphone. The user will be notified of the weather conditions, whether it is sunny, cloudy, or pouring. The most essential feature of this device is that it will alert the user if there is a sudden downpour. This device will send a signal to the user's smartphone and as a result, the user will be aware when it rains in order to save anything that may be harmed as a result of the rain. The data of the weather will be kept in a database so that the user can monitor it.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
NOOR MOHD ARIFF BIN BRAHIN	MUHAMMAD HAZIQ BIN NAZARUDIN	DEVELOPMENT OF REAL TIME SMART PARKING SYTEM USING DATABASE AND ANDROID APPLICATION.	The system is to detect free and occupied parking lot. In real life situation, parking management will be informed on how many cars in the parking lot and how many empty spaces still remaining. Sensors and microcontroller will be used to detect the empty parking space. Every free and occupied parking lot will be stored into database. Android application will be developed to so tahat user will be able to identify the availability of the parking space and its location in the parking lot.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
NOOR MOHD ARIFF BIN BRAHIN	MUHAMMAD FIRDAUS BIN JAMALUDDIN	DEVELOPMENT OF SMART HOME: FIRE SAFETY SYSTEM USING IOT	Smarthome : Fire Safety Detection with IoT is the system that will detect fires and unexpected smoke in the house. Few appropriate sensors will be connected to a microcontroller that will act as IoT gateway. The IoT gateways will reach out to owners or users to gain visibility of things going on in their homes even when they are not there. The use of IoT will indirectly provide notification to their smarphone when a burning occurs as a warning. The features of the IoT system also being capable to stored a database that can be used by the user to monitor the event that have been happened. A simple Android application will be developed to show the status and condition of user's home base on the data from the sensors.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
MUHAMMAD IZZAT ZAKWAN BIN MOHD ZABIDI	CHE IZZATI AYUNI BINTI CHE ROHIM	DEVELOPMENT OF BLOOD DONATION MANAGEMENT SYSTEM USING MOBILE APPLICATION.	Blood donation saves lives, and effective communication between blood facilities and donors is important. Sometimes we wish to do good by donating blood but our good deeds might go to waste if it is not well managed. The objective of this project is to develop a system that assist users in proper communication between blood facilities and blood donors. The proposed method using an online mobile apps, that is linked to blood facilities database. The expected results are that users can easily register and make appointment as blood donor, be informed on updated blood supply status, and also automatically proposed a blood donation timetable based on available data. Furthermore, this apps helps new donors to find nearby blood center and give notification to all donors if emergencies occur and certain type of blood is needed in a huge amount.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
MUHAMMAD IZZAT ZAKWAN BIN MOHD ZABIDI	MOHAMED HAZEEM BIN HASHAINI	Development of Football Field Management System Using Mobile Application	Social football is very famous in our country nowadays. There are so many new football field built lately. Effective communication between the football field management and football clubs manager is very crucial. The objective of this project is to develop a system that assist users in proper communication between the football field management and football clubs manager. The proposed method using an online mobile apps that is linked to football field management database. The expected results is that user or the football clubs manager can easily register and book their slots and be informed on new updated status for the football field. With a proper football field management system, proper management strategies can be implemented and this business industry will be more advanced.	PRACTICE ORIENTED	Title and project synopsis are acceptable.

MUHAMMAD IZZAT ZAKWAN BIN MOHD ZABIDI	ADHWA AIMAN SAHAR BIN AZHARI	Development of Medical Management System by Using Mobile Application	Health is the most importance thing in life, because health can't be bought by money. Some people didn't know that if we do an medical examination we can check many thing such as blood screening, physical examination and doctor cosultancy. By using Medical Management Mobile Application, the objective of this project is to develop a system that assist users in proper communication between the clinic, doctor and patients. The proposed method using an online mobile apps, that is linked to some clinic or health center database. The expected results are that users can easily register and make medical checkup appointment as patient, and then the clinic will give the date and the time for the appoinment and then as for the doctor will give a full medical update about your checkup and doctor can refer your previos checkup report on the database and the medical report can be request in the apps by the patient without going to the clinic.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
RADI HUSIN BIN RAMLEE	NIVEKHA A/P RAMADAS	Development of Smart Window Shade for rain and heavy sunlight protection using arduino microcontroller	Unclosed or forgot to close the windows of houses, offices, hostels, hotels and etc. During the heavy rains, the appliances inside a room might be wet and damaged and on heavy sunlight, unwanted heat energy might increase the temperature of the properties. Electrical appliances also could be at high risk at these times when the things got wet due to the raining if the person forgot to close the windows. As a result, there will be electric shock risks and can harm a person. This project's objectives are (1) To develop a smart window shade that open and close based on the water, heat and light intencity sensors that should protect the building from rain and heavy sunlight (2) To analyze the responsiveness of the retraction mechanism in different conditions of raining and sunlight. (c) To test the device effectiveness in different conditions of raining and different brightness of sunlight. For this project I meant to use the software and hardware as well so for hardware components list are Arduino uno R3, Motor 360 type, water sensor, heat sensor, light intencity sensor, Connection wires, Breadboard, LEDs, Buzzer as a core components for my project, for the software part I plan to use the Arduino app for coding and the language is C+ and implant the coding from the app to the Arduino uno R3 thru the USB cable. The result will be the rain sensor sense the humidity of the surrounding air and react upon the humidity level when it senses droplets it will send instructions to motor and buzzer and the motor will spin and drop close the window while buzzer gives an alarm and the LED will light up to indicate there's a rain and the windows are closing. So to overall work the coding in Arduino uno R3 is very important and thus the rest of the components as well	PRACTICE ORIENTED	Title and project synopsis are acceptable.
RADI HUSIN BIN RAMLEE	NUR AZIAH BINTI AHMAD	Development of Smart E-hailing Safety Device for Women passenger with IoT and GPS Tracking using raspberry pi	[Problem statement] -Make sure the safety of woman panssenger driver of the e-hailing -Woman feel not safe to travel alone -Sexual harrassment during driving or riding e-hailing -Prevent any unwanted accident related to sexual harrassment [Objectives] 1.To develop a device that could prevent crime against woman as passanger and driver in e-hailing industry 2.To develop an alert system that could notify important personals incase of an emergency 3.To test the device responsiveness, versatility and robustness.-GSM and GPS Module(Send location via message or call) [method] -Buzzer(Loud Sound) -Pulse Sensor(Heartbeat increases-Danger) -Vibration Sensors -Camera(to snap surrounding picture when sensor sense danger) -Neuro Stimulator(Electric Shock to attacker) -Raspberry Pi -Button -LCD(Display Help!) [expected result] When woman feel she in danger. She can push the button and automatically the message of the location and also at the same time the surrounding picture will be snapped by the camera and will be sent to the emergency number that have been set. At the same time buzzer will be on. Woman can put the device directly to the criminals and make them feel the electric shock. Or second one, when the hearbeat exceed the normal heartbeat or the vibartion is very high, the message will automatically send to the person who they have set the emergency number, and the picture will be snapped and the picture and also the location will be sent and the buzzor will be on or LCD will be display HELP to tell other people that she in danger	PRACTICE ORIENTED	Title and project synopsis are acceptable.
RADI HUSIN BIN RAMLEE	MOHAMAD SHAHRUL BIN KISMATH BATCHA	Development of Weather Alert Apps Using Weather Application Programming Interface (API) for Android Mobile phone	Because the lack of information and alert about the weathers, people do not know the danger about it that may cause serious problem. Not alert with the current weather situation may become one of the factors that cause people from noticing that a natural disaster is approaching their area. It is hard to know the current weather situation just by looking in the sky. Some of the mobile applications just show the weather status and not know what will happen after that. To overcome this problem, Mobile Weather Alert Application is the most suitable solution to solve this problem. [Objectives] i.To develop an application that may notify the subscribers (or public) about the risk of natural disaster based on weather information. ii.To provide a real-time information about the current weathers. iii.To test Mobile Weather Alert Application based on the selected application scenarios. [method] Mobile Weather Alert Application Using Application Programming Interface (API) is a mobile application that will notify and give an alert to the user. The system will alert the user based on the data that provided from weather API. Furthermore, this system will develop using the agile methodology since it is easier to develop this kind of system. This methodology will help the developer to create quality and more efficient product. Finally, this application can help many people out there to become more aware and alert about the weather so that can avoid from bad thing happen. [expected result]With this mobile application, the people to receive an alert about the current weather-related disaster situation in their place by implementing the GPS system and can read the information about weathers or disaster that happened around them. This application will use weather API that enables to access the data about the weather from around the world and can access the data from the weather station to provide the information to the users. The widget will provide the notification to the user about the all-day weather information and the widget will update real-time.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
DR. JAMIL ABEDALRAHIM JAMIL ALSAYAYDEH	MUHAMMAD ASYRAF BIN SALMI	Development of Multipurposed Customize Mobile Application for Urban Farming Using GoodBarber Apps	project synopsis : Urban farmer doesn't have easier way to monitor multiple aspect of their farm like temperature, humidity or else. Monitoring the farm by themselves can be quite a hassle to the farmer that live far away from their farm since in the city, it's hard to find a suitable place to start a farm with their home in proximity. The objective of this project is to ease urban farmer monitoring their crops inside the farm. The application will provide the urban farmer the overview of their farm's condition making the farmer doesn't need to be in the farm themselves. The proposed method to execute this project is by using the GoodBarber application. GoodBarber application is a tool to allow the user build application easily without the deep knowledge of building an application. The expected result of this project is the application can provide user interface (UI) that can give urban farmers, information of their farm conditions.	Industry-based	Title and project synopsis are acceptable.

Supervisor	Student	Title	Synopsis	Category	Remarks
DR. JAMIL ABEDALRAHIM JAMIL ALSAYAYDEH	MOHAMAD AMIRUL ALIFF BIN ABDILLAH	Development of vehicle accidental system by using microcontroller	Most vehicles are involved in accidents, resulting in the deaths of many people. Some people could be saved at that moment, but it may not be possible due to a lack of knowledge, time, or location. This project will provide the best solution to that issue. The goal of this project is to create accidental tracking system for vehicle by using micro-controller, to provide information where, when and how accident happen by using accidental tracking system for vehicle, and to make sure information of victims receive at their relative 5 seconds after the accident happen. This accidental system is utilised an Arduino Uno as a microcontroller to control the system's input and output and GSM is used to send message to relative of victims. Push button is fixed on the vehicle to collects the impact. Accelerometer sensor is used to detect whether the vehicle is capsized or not. If an accident occurs, the car number and individual contact information are automatically passed to the family member so that family member can contact police and rescue teams immediately. The police will quickly pinpoint the site of the accident from which the information collected from the tracking system. Then, once the position has been verified, another steps will be taken. This project is life saver for someone that been involved in accident.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
DR. JAMIL ABEDALRAHIM JAMIL ALSAYAYDEH	MUHAMMAD ZULHAKIM BIN ABDUL HALIM	Development of patient health monitoring system using ESP8266 and ARDUINO with IoT platform	With tons of new healthcare technology start-ups, IoT is rapidly revolutionizing the healthcare industry. In this project, we have designed the IoT Based Patient Health Monitoring System using ESP8266 & Arduino. The IoT platform used in this project is ThingSpeak. ThingSpeak is an open-source Internet of Things (IoT) application and API to store and retrieve data from things using the HTTP protocol over the Internet or via a Local Area Network. This IoT device could read the pulse rate and measure the surrounding temperature. It continuously monitors the pulse rate and surrounding temperature and updates them to an IoT platform.	Industry-based	Title and project synopsis are acceptable.
TS. DR. ROSTAM AFFENDI BIN HAMZAH	AMIR FIRDAUS BIN MUHAMMAD FADZLI	DEVELOPMENT OF PORTABLE SEMI-AUTO ABLUTION KIT USING ARDUINO SYSTEM	In the Muslim religion, ablution is a hygienic obligatory act of purifying one's self before performing worship by washing some parts of the body. The common way used for ablution is by using tap water and the usual spray bottle is used when doing outdoor activities. However, in performing ablution have been found as high waste of water rates when using tap water manually. Thus, the production of a portable water-saving system can help to solve the problem of water wastage. Although Muslims are aware of how to take ablution prior to worship, there is some lack of knowledge and attitude in the amount of water used for ablution.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
TS. DR. ROSTAM AFFENDI BIN HAMZAH	NUR ZAHIRAH BINTI ALIAS	Development of Smart Gate System using Plate Number Recognition with Raspberry Pi	Automatic Number Plate Recognition (ANPR) is a technology which uses optical character recognition on images to identify the vehicle registration plates. In specific area like military ground, government building and university compound, it is very important to maintain the security and avoid any unwelcome intruder as to avoid any unwanted incident. A well developed smart automation gate system will increase the security level and reduce any risk of security breaching. The smart gate automation system will be implemented with Automatic Number Plate Recognition (ANPR) which will operate solely by the system without human intervention.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
TS. DR. ROSTAM AFFENDI BIN HAMZAH	SITI NUR AISSYAH BINTI ABDULLAH	Development of Temporary Accommodation Center System (TACS) for Flood Victims Using PHP MySQL	The purpose of this project is to model the Temporary Accommodation Center System for Flood Victims. Every year, Malaysia is often hit by natural disasters of floods that occur due to the northeast monsoon season which is also due to prolonged rains everywhere and covering a large area. The states involved include Perlis, Kedah, Penang, Perak, Selangor, Negeri Sembilan, and Melaka as well as large cities such as the Federal Territory Kuala Lumpur. Therefore, there is a need to develop a Temporary Accommodation Center System for Flood Victims which is not only focused on flood victims but also to focus on the number of enforcement personnel such as JPAM involved in the task of rescuing flood victims in the Temporary Accommodation Center, the number of volunteers serving temporarily and the number of visitors (consisting of elected representatives, senior representatives of the enforcement authorities, ministers, etc.) who come for visits and also provide assistance or so on in detailed. This project attempts to develop a Temporary Accommodation Center System for Flood Victims using various technological facilities such as websites and applications used.	PRACTICE ORIENTED	Title and project synopsis are acceptable.
AZMAN BIN AWANG TEH	ILYA IZIANA BINTI KAMARUZAMAN	A FIRE DETECTION FOR SMART HOME WITH AUTOMATIC DOOR UNLOCK &LOCKED SYSTEM USING IOT	Home automation has made it possible to have what is often referred to as a smart home, a homethat can detect and identify you. We can control all our home related stuff from far automatically like adjust the lighting to your predefined taste, open doors automatically, play your favorite music,water your flowers in the morning, switch on the security lights at night and switch them off in themorning, heat water for bathe and tea, stream to you anywhere in the world via the internet a livevideo of what is happening in and around your house. Automation is popular nowadays because itmakes it possible to link lighting, entertainment, security, telecommunications, heating, and airconditioning into one centrally controlled system. This allows you to make your house an activepartner in managing your busy life. Devices can interact with each other and you can control everything from your thermostat, lights,home security system and even your microwave from your smartphone or smart speaker. Whileconvenient, this interconnectedness brings potentially serious implications for your home's fire andlife safety. If that device is controlling a heating appliance, this unattended product could potentiallyoverheat and cause an ignition. The more complex the home is with smart devices, the higher theopportunities for errant failures in product operation. Smart home devices create an ecosystem ofinterconnectedness, which can cause a cascade effect if something goes wrong. Moreover, everysmart device is plugged into house power, and can become a potential ignition source of its own.Imagine how helpful it will be to be able to have a security system that will detect smoke and youreceive the warning message because of that? Also, smart home that comes with the design ofautomatic locked door when the fire is sensed is surely good to be invented but what happen if thereis someone being trapped inside while the house is on fire?	PRACTICE ORIENTED	Title and project synopsis are acceptable.
AZMAN BIN AWANG TEH	MUHAMAD SYAFIQ IZZAT BIN ABDUL RAZAK	Smart mailbox system with automatic sanitasion using GSM	Most users were unaware that they had received new mail via mailbox. They must check their mailbox on a regular basis, which is inconvenient and time-consuming. Most of the time, users neglect to check their mailboxes. This will result in an inability to read letters or documents. Apparently, it will result to various problem to users. Most of the buildings, such as an office building, had a centralized mailbox system. The system will send a text message to let them know that they have new mail in their mailbox. This system was made to make people's lives easier by sending text messages and taking a picture of an object to alert them to important new mails that have arrived in their mailbox. This project will use a GSM module and LDR sensor to detect incoming objects in a mailbox and notify the user, as well as automatically disinfect the incoming objects. The delivery man will enter the right identification in order to open and close the mailbox door. It will also capture the image of the object by using OV7670 camera module and send to the user.	PRACTICE ORIENTED	Title and project synopsis are acceptable.

AZMAN BIN AWANG TEH	NURUL NAJIHAH BINTI MOHD MUSA	SMART DUSTBIN WITH GPS LOCATION Using IoT	Waste management is an important issue that needs to have a concern in every country. Waste management in Indonesia at this time, is still limited and manually, the officer will clean up at a specified time according to the schedule, this is very ineffective because the trash can have been fully before the garbage collection schedule, the delay of garbage collection will cause the garbage on the trash can overflow and smell. Waste volume produced by inefficient waste management would cause insects, bacteria, and viruses multiply rapidly that can infect humans. This is the solution, a method in which waste management is automated. This is IoT Garbage Monitoring system, an innovative way that will help to keep the cities clean and healthy. The purpose is to develop an efficient and systematic garbage system by using Internet of Things (IoT) platform. The proposed system uses ultrasonic sensors placed over the bins to detect the garbage level and compare it with the garbage bins depth. The proposed system is needed for the immediate cleaning of the dustbins. To start with you will first have to enter the height of the dustbin. This will help us generate the percentage of trash in the trashcan. We then have two criterias which needs to be satisfied to show that the particular bin needs to be emptied: 1. The amount of trash, in other words let's say if your bin is half full you don't really need to empty it. Our thresh, or maximum amount that we permit of trash, is 75% of the bin. (You could alter the thresh according to your preference.) 2. If supposing a particular trashcan fills up 20% and then for a week doesn't change, it comes into our second criteria, time. With time even the little amount will start rotting leading to a smelly surrounding. To avoid that our tolerance level is 2 days, so if a trashcan is less than 75% but it is two days old it then will also need to be emptied. An ultrasonic sensor (A.K.A a distance sensor) will be placed on the interior side of the lid, the one facing the solid waste. As trash increases, the distance between the ultrasonic and the trash decreases. This live data will be sent to our micro-controller. Our micro- controller then processes the data and through the help of Wi-Fi sends it to an app. What the app does it visually represents the amount of trash in the bin with a small animation. This process will indicate all the bins which require attention, leading the user to take the most effective route.	PRACTICE ORIENTED	Title and project synopsis are acceptable.