| # | **Project** |
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| 1 | <u>AI-Enabled Digital Health Platform for Chronic Disease Monitoring</u><br>Chronic disease patients often struggle with fragmented health information and lack of real-time monitoring. Existing systems do not fully leverage AI to detect early warning signs or provide personalized recommendations. The organisation seeks a prototype solution that can integrate multi-source health data (e.g., glucose levels, activity, vitals) and provide actionable, AI-powered insights to support timely interventions by patients and healthcare providers.<br><br>*Project may include role-based access control, patient data generation, dashboard, recommendation engine, automation triggers, chatbot* |
| 2 | <u>Ambient Clinical Scribe & Radiology Report Assistant</u><br>In clinical settings, clinicians spend a significant amount of time on documentation tasks, which often leads to delays in patient care and reduced throughput. Traditional methods of report generation require extensive manual input, increasing the risk of errors and prolonging turnaround times. This inefficiency not only impacts the quality of patient care but also affects the overall experience for both healthcare providers and patients. The goal of this project is to address these challenges by developing an intelligent system that automates clinical documentation processes, enabling clinicians to generate high-quality Subjective, Objective, Assessment and Plan (SOAP) notes and radiology report drafts in minutes, without compromising accuracy or efficiency.<br><br>*Project may include AI algorithms, data generation, speech recognition* |
| 3 | <u>AR Plant & Animal Guide for Park Guides</u><br>Sarawak's national parks are home to rich biodiversity, yet park guides often face challenges in delivering engaging, accurate, and interactive tours focused on plants. Visitors often ask questions about plant names, uses, or conservation value, but identifying species on the spot can be difficult. Poor connectivity in remote parks further restricts access to online reference tools, making immediate, reliable information a challenge. there is a need for a localized, offline-capable AR mobile application designed specifically for park guides.<br><br>*Project may include custom story telling content, highlighting key flora and fauna and linking them to geolocations, use AR to visualize plants and animals in situ, plant recognition tool* |
| 4 | <u>Asset Tracking System</u><br>Mobile-optimized asset management solution for tracking IT equipment and facilities across campus.<br>• Scanning Technology: QR code and barcode scanning via camera<br>• Asset Management: Record name, model, description, condition, location<br>• Status Tracking: Monitor equipment status (Spoiled/In-use/In-store)<br>• Department Assignment: Track asset ownership by department<br>• Extension: General building facilities (furniture, equipment) |
| 5 | <u>Augmented Reality Navigation System</u><br>Limitations of current navigation systems in real-world scenario:<br>While 3D navigation exists, it still relies on static map-based interfaces, which require drivers to interpret the map and match it to the real-world road environment. This leads |

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| | to confusion at complex intersections or multilane roads. A more intuitive solution is needed to overlay route guidance directly onto the live road view using augmented reality.<br><br>Create an Android app that enhances the vehicle navigation experience. The app should use the car's camera feed to display the real-world driving environment and overlay navigation guidance (e.g., arrows on the actual road, highlighted lanes), making navigation more intuitive.<br><br>*Project may include computer vision algorithms, mapping/navigation tools* |
| 6 | <u>Automated Digitisation and Information Extraction from Herbarium Specimens</u><br>Herbarium specimens are an essential scientific resource, preserving plant diversity records for research, conservation, and education. However, much of the knowledge remains locked in physical sheets, with specimen labels containing taxonomic, spatial, and temporal data that are rarely digitised at scale. Manual transcription is time-consuming, inconsistent, and resource-intensive, creating bottlenecks in biodiversity data mobilisation.<br><br>Current challenges in Sarawak include:<br>• Limited manpower for large-scale digitisation and metadata transcription.<br>• Variations in specimen label formats, handwriting, and multilingual text (English, Malay, Latin, indigenous names).<br>• Lack of automated systems to process and structure herbarium data efficiently.<br><br>To address these gaps, this project proposes an AI-driven digitisation pipeline that can automatically detect, extract, and structure information from scanned herbarium specimen sheets. Inspired by systems such as Hespi, the solution will integrate computer vision, Optical Character Recognition (OCR), and Natural Language Processing (NLP) to transform physical herbarium collections into structured, accessible digital resources.<br><br>*Project may include image capture and storage, data annotation, AI algorithms* |
| 7 | <u>Big Data Analytics for Connected Vehicles</u><br>Cars are becoming data-generating devices, with VIN, GPS, and sensor data continuously collected. However, this enormous data is often underutilized, resulting in missed opportunities for predictive maintenance, optimized traffic management, and enhanced user services. Thus, this enormous data becomes wasted potential instead of a valuable asset for innovation and decision-making.<br><br>Design and implement an analytics system that leverages large-scale data collected from vehicles (e.g., VIN, GPS, speed, sensor data). The project should explore how this "car-generated big data" can be transformed into actionable insights (e.g., predictive maintenance, traffic pattern analysis, usage trends).<br><br>*Project may include data processing and analytics, database optimisation, AI algorithms* |
| 8 | <u>Central Accommodation Management System</u><br>The system is designed to simplify the process of booking accommodations and managing payment. It integrates with PayPal (for starters), allowing both customers and |

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| | operators to manage bookings efficiently, receive notifications, and complete transactions in a smooth, automated manner.<br><br>Sellers can manage booking requests, payments, receive notifications, while customers can make bookings, receive offers, make payments.<br><br>A mobile application is needed, along with AI features and data analytics. |
| 9 | <u>Church Web-Based Infrastructure Booking and Complaint Management System</u><br>With multiple ministries and community groups using the church's facilities, manual booking often leads to scheduling conflicts, double bookings, and lack of visibility of available resources. Furthermore, handling infrastructure complaints (e.g., broken equipment, faulty air-conditioning, cleanliness issues) is often slow due to the absence of a centralized tracking system. This results in delayed maintenance, reduced resource utilization, and communication gaps between staff, volunteers, and church members.<br><br>*Project may include user management, booking, complaint and maintenance, dashboard and notifications, inventory management, event scheduling* |
| 10 | <u>Cocoa Pod Borer (CPB) egg identification with AI</u><br>DMCOCOA Apps was developed to assist cocoa farmers:<br>- In making decision when insecticide spray is needed to control the CPB eggs population so as not to achieve economic losses<br>- To keep the record of wet or dry cocoa beans yield and as well as the sales value of cocoa beans for each transaction made<br><br>PROBLEM: User (cocoa grower) has difficulty to identify the CPB eggs due to the size too tiny (less than 0.5 mm)<br><br>SOLUTION: To develop AI that able to identify the CPB eggs through scan / picture taken the pod with phone camera<br><br>*Project may include AI algorithms, hardware setup, mobile app integration* |
| 11 | <u>Customer Support System</u><br>The organisation's customer support team currently faces challenges in managing requests and feedback across multiple communication channels, including WhatsApp, email, and Interactive Voice Response (IVR). Without a unified system, inquiries are difficult to consolidate, leading to inefficiencies in tracking and responding to customer needs. Additionally, routing issues to the next layer of support tools, such as Asana, is cumbersome and prone to delays. This fragmentation not only slows down resolution times but also impacts overall customer satisfaction. Furthermore, the absence of an integrated rating or feedback feature limits the organisation's ability to capture valuable insights from clients, making it harder to measure service quality and identify areas for improvement.<br><br>*Project may include API integration, ticket, rating and feedback, AI algorithms, dashboard, chatbot* |
| 12 | <u>Digital Unit File System</u><br>Unit content management is an important part of ensuring consistent delivery of units offered across multiple semesters. As part of this process, a digital unit file is created for |

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| | record-keeping purposes after the conclusion of each semester. The current process of creating these records is manual and requires coordination and approval from several faculty staff members, manual verification of the prepared documents to meet the expected format of the file repository.<br><br>The goal of this project is to create a tool that assists with communication and coordination across faculty staff and verification of the files according to the expected format and repository structure.<br><br>*Project may include document upload, content validation, data processing, AI algorithms* |
| 13 | <u>ECG Analysis and Annotation System</u><br>The Electrocardiogram (ECG) plays a vital role in the decision-making processes of treating heart disease. The ability to measure the disease burden in individuals enables for early detection of heart diseases and a personalized healthcare solution. Wearable ECG generates immense volumes of ECG data which have to be interpreted to deliver a diagnosis for clinical decision-making. The goal of this project is to develop an ECG processing pipeline that consists of collection, annotating, training and analysis of ECG at scale.<br><br>*Project may include data processing, visualisation, annotation interface, data export, AI algorithms, real-time analytics* |
| 14 | <u>Fine-Tuning Diffusion Models for High-Quality Anime Character Generation Using LoRA and Advanced Training Techniques</u><br>This project involves researching and implementing advanced fine-tuning techniques for image generation models, with a focus on anime character creation<br><br>1. Model Fine-Tuning Techniques<br>2. Dataset Preparation<br>3. Training Pipeline Development<br>4. Quality Assessment<br>5. User Interface Development<br>6. Performance Optimization |
| 15 | <u>Food-Nutrition Knowledge Hub: A Digitalisation Approach to Preserving and Analysing Local Food Nutrition</u><br>The preservation of traditional food knowledge is at risk as younger generations increasingly adopt modern dietary habits while overlooking the nutritional value of local foods. In many rural communities, such as the Bidayuh in Sarawak, knowledge of traditional dishes and their health benefits is often passed down orally and remains undocumented. At the same time, rising health concerns such as obesity, diabetes and hypertension highlight the need for accessible tools to raise awareness of balanced nutrition.<br><br>Currently, there is no centralised digital platform that documents and analyses local food nutrition while making it accessible to the community in an engaging and sustainable way. Existing nutrition applications mostly focus on Western food databases and lack cultural relevance for local diets. Without digitalisation, valuable cultural knowledge may be lost, and communities will continue to face challenges in |

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| | managing nutrition-related health issues. Therefore, there is a need to develop a Food-Nutrition Knowledge Hub that digitalises local food data and provides nutritional analysis while preserving cultural food heritage.<br><br>*Project may include food management, user access control, report generation, export/import data, dashboard, recommendation engine, integration with external databases* |
| 16 | <u>IoT-based Early Warning and Flood Monitoring System</u><br>There are a variety of remote monitoring stations and technologies employed against most natural disasters, but none of them are easily replicable and cost-effective for deployment throughout the flood-prone rural areas of Malaysia. The region imposes poor infrastructure for adequate Internet communications and long disaster response-times leading to devastating consequences on the population within the affected areas. Furthermore, installation of expensive equipment is prone to theft and vandalism, deterring Non-Government Organisations from investing in early-warning technologies that could save lives.<br><br>Development of a low-cost, easily reproducible IoT node for installation in riverbanks to detect rising water levels is required, communicating with cloud services via NB-IoT or similar GSM-based subscription. The node must contain independent power supply (likely via solar panel and battery) and be housed in an environment-proof enclosure for long-term outdoor operation. A Cloud Application is needed to collect status and notifications from every active IoT node, opening the possibility for extension such as regression models, data analytics, and more. Field testing is required.<br><br>*Project may include hardware setup, cloud computing, networking* |
| 17 | <u>Library Self-Checkout System</u><br>Digital library management system enabling self-service book transactions through SIP2 protocol integration.<br>• Core Functions: Book borrowing and returning<br>• Technology: QR/barcode scanning via camera<br>• AI-powered book recommendations<br>• Learning path management<br>• LinkedIn Learning integration<br><br>System should have integration with Angka.sa2 SIP2 Server using Standard Interchange Protocol (SIP) v2 messaging format for library system communication. |
| 18 | <u>Logistics & Trade: HS Code Classifier and Customs Docs Copilot</u><br>Importers and exporters across global supply chains face significant time and cost burdens when classifying goods and preparing cross-border documentation. Misclassification of products under the Harmonized System (HS) code—often due to ambiguous product descriptions or lack of clear guidance—leads to delays, penalties, and inefficiencies in shipment processing. This project addresses this critical pain point by developing an AI-powered tool that automates the classification of goods and supports the preparation of customs documentation, reducing manual effort and minimizing errors.<br><br>*Project may include AI algorithms, data generation, optical character recognition* |

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| 19 | <u>Map Request & Tracking System for Totally Protected Areas Geospatial Services</u><br>The organisation's process for requesting, approving, and delivering totally protected area (TPA) maps and other geospatial services is managed manually, leading to inefficiencies, lack of transparency, and inconsistent tracking of requests. Requests are submitted through forms without centralised tracking, and updates are communicated via email without automated status changes. The lack of an integrated system makes it difficult to monitor request progress, maintain an accessible archive of past maps, or ensure timely approval and delivery. This results in delays, duplicated work, and challenges in maintaining accountability.<br><br>*Project may include file upload, approval workflow, status tracking, searchable repository, reporting, data export, statistical analysis* |
| 20 | <u>Merchant Onboarding System</u><br>The current merchant onboarding process is manual, requiring merchants to submit physical forms and supporting documents, which are then keyed in daily by office staff. This not only causes delays and inconvenience for merchants but also limits the organisation's ability to onboard businesses outside their operating region.<br><br>In addition, their existing merchant portal and mobile application have not undergone significant updates in recent years. The limited functionality and lack of user-friendly design reduce the overall merchant experience. Key features such as detailed payment statistics, settlement history, and analytics tools are either missing or insufficient, making it difficult for merchants to monitor performance and gain insights into their transactions.<br><br>Together, these limitations highlight the urgent need for a comprehensive revamp of both the merchant onboarding process and the merchant portal/application to streamline operations, support scalability, and enhance the overall user experience.<br><br>*Project may include onboarding process, merchant registration, payment process* |
| 21 | <u>Open-Source Dashboard and Python-Based Energy Planning Model</u><br>Advanced Interactive Multidimensional Modeling System (AIMMS) is a software platform for mathematical optimization and decision support. While AIMMS is powerful, it is not widely accessible because it is proprietary, expensive, and requires technical knowledge to operate. As a result, decision-makers, students, and industry users cannot easily use or explore the results from the model.<br><br>An energy planning model was built using AIMMS, therefore the client needs a way to:<br>1. Extract data and results from AIMMS so they can be shown in a more user-friendly way.<br>2. Build a dashboard that allows people to interact with the model results (e.g., view charts, compare scenarios, explore "what if" questions).<br>3. Recreate the model in Python, which is free and open-source, so it can be used and developed further without depending on AIMMS.<br><br>*Project may include AI/statistical algorithms, data extraction and integration, dashboard, translation to Python* |

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| 22 | Swinburne Campus Mobile App<br>A comprehensive campus navigation and support application for students, visitors, and families.<br>• Emergency Services: Direct security contact on campus<br>• Campus Navigation: Find dining, parking, and study locations<br>• Support Services: Live chat assistance<br>• Events Management: Search, filter, and bookmark campus events<br><br>System should be built on Next.js with Capacitor mobile wrapper |
| 23 | Unit Preparation System<br>Quality assurance (QA) is an ongoing process to ensure that high quality education is delivered to students in each semester. The process is manual and running through a checklist of tasks that may vary depending on the unit's status, involving coordination with other academic staff for review and moderation. The goal of this project is to develop a software system that assists unit convenors throughout the preparation process by surfacing important information necessary for unit content preparation, moderation and adhering to the QA process.<br><br>*Project may include file upload and processing, approval workflow, integration with learning management system* |
| 24 | Voice-Enabled In-Car Assistant<br>Many cars currently only support basic, predefined voice commands (e.g., "Play music" or "Call contact"). These rigid systems cannot handle natural conversation or provide intelligent, context-aware responses. Drivers often struggle with distraction when operating controls manually. There is a lack of conversational AI-driven voice assistants that can provide flexible, real-time responses tailored to drivers' needs.<br><br>Develop a voice recognition system integrated into the vehicle's Infotainment Head Unit (IHU). The assistant should understand natural language queries from the driver (e.g., "Where is the nearest petrol station?", "What's the weather today?") and respond accordingly, similar to ChatGPT but optimized for in-car use.<br><br>*Project may include AI algorithms, integration with web services, speech to text* |
| 25 | Web-based Building Information Modeling (BIM) Viewer<br>This viewer would leverage an open-source engine to read and display BIM files, specifically those in the Industry Foundation Classes (IFC) format. The aim is to create an alternative to existing closed BIM systems that rely heavily on proprietary software from large companies like Autodesk. There are generally two types of BIM systems: closed BIM, which are fully dependent on specific vendor software, and open BIM, which promotes interoperability through open standards. We are focusing on open BIM, as it allows IFC files exported from a closed BIM system to be read by an open BIM engine. This approach is crucial for lowering the industry's reliance on costly proprietary software and fostering greater accessibility and flexibility.<br><br>A brief use case for this prototype would involve a user uploading an IFC file to the web-based viewer. The viewer would then render the 3D model, allowing the user to navigate through the building information, inspect properties of elements, and potentially perform basic measurements or clash detection. |

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| | *Project may include file upload, model rendering, user navigation, object modelling and analysis* |
| 26 | Web-Based Luggage Storage & Delivery Management System<br>Currently, travellers and tourists face challenges in managing their luggage when transitioning between flights, hotels, or events. Manual bookings via calls or walk-ins lead to inefficiencies, poor customer experience, and lack of transparency in tracking luggage. The organisation requires a client-focused, web-based platform that enables easy booking, luggage tracking, delivery scheduling, and secure payment processing. This system must streamline operations, provide real-time status updates, and enhance overall customer satisfaction while improving operational efficiency.<br><br>*Project may include user registration, luggage booking, delivery request, real time tracking, digital payment, support chat, analytics and reports, navigation, earnings, notifications* |
| 27 | A preliminary investigation in conversational Human Robot Collaboration (HRC) approach for safer VLA-based Human-Cobot interaction |
| 28 | A User-Centric Password Management Framework with Novel Features to Improve Security and Recall |
| 29 | AI-driven construction: A Framework for Work Activity Recognition and Risk Assessment, Construction Robots Assignment, Tasking and Resolution on Construction Sites |
| 30 | Conversational AI for Human-Centric Industrial Anomaly Detection in Industry 5.0 |