System Development for Office of DVCRI KL

Proposals for 2021

Proposed Systems

1. Equipment Usage and Booking System for University Laboratory Management Centre

2. Graduate Student Hunting System for Research Management Centre

3. Online Pay2Use System for Service Labs

Equipment Booking and Borrowing System for University Laboratory Management Centre

Problem Statement

- Current manual system using Google Sheets, PDF forms and manual filing causing problems of :
    - Equipment availability tracking (placement & usage)
    - Organization of forms and files –unintegrated records and files
    - Reporting to management
- The manual process of **booking** lab equipment
    - User apply to use an equipment
    - Lab technician checks availability of equipment – suggests dates to user
    - User accepts date – book date to use equipment
    - On the date of usage – user comes to lab and register log book to confirm usage of equipment
- The manual process of **borrowing** lab equipment
    - User apply to use an equipment
    - Lab technician checks availability (date, place, and condition) of equipment – suggests dates to user
    - User accepts date – book date to borrow and return the equipment
    - On the date of usage – user comes to lab and take the equipment – must register acquisition process
    - Lab technician keeps track of equipment and remind user of expiry date of borrowing
    - User returns the equipment – must register return process

Manual Forms and Processes
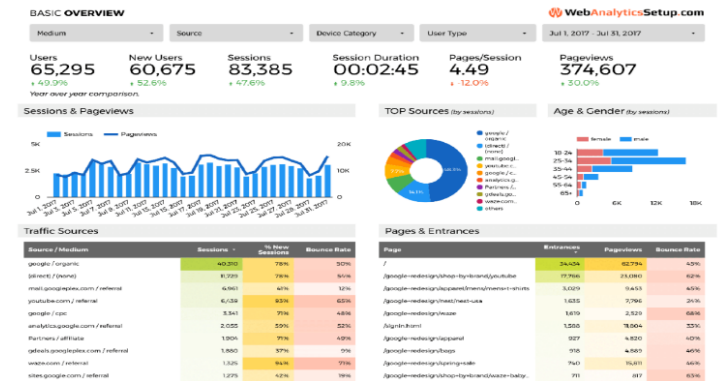
Proposed Modules – An Online System

1. Registration of **labs** and **equipment**
   - 4 **units** (Electrical, Mechanical, Civil Eng., Service)
   - Average of 12 labs per unit
   - Each lab consists of a number of equipment –
   - Each Equipment comes with 'birth certificate' (KEWPA) forms, SOP guidelines, equipment tracing records
   - Equipment tracing records are: log book, borrowing form, and returning form

2. Registration of **stakeholders** : each stakeholder with different roles
   - Students – review equipment and make booking
   - Academic staff - review equipment and make booking
   - Lab technician / Lab manager – register equipment and keep track of bookings and usage
   - Head of units / Engineer – review booking and usage reports
   - Director (management) - review booking and usage reports
   - System admin- view all

3. Registration of **equipment usage booking** – equipment id, date of usage, purpose, who is using (student/staff)

4. Registration of **equipment borrowing** - equipment id, start date, end date, purpose, location, who is borrowing (student/staff)

Graduate Student Hunting System for Research Management Centre

Problem Statement

- UTM academic staff needs to find research assistants (RA) for their research projects

- Each project got 2 years duration to complete, therefore the urgency to find RAs is critical (first 6 months of project must appoint an RA)

- RAs are consists of Masters and PhD students who will be working in the project with given monthly allowance

- There is no manual system for this problem, as currently staff find their RA on their own

Proposed Modules – An Online System

1. Registration of **projects** consists of:
   - Project title
   - Project leader (academic **staff**)
   - Focus/ niche area
   - Duration of project (start date, end date)
2. Registration of **employment requirements**:
   - Salary /allowance per month
   - Duration of employment
   - Job scope
   - Outcomes of employment
   - School of Postgraduate's list of requirements

3. Registration of **employment interest**:
   - **Student** details (name, contact no, email)
   - Period of availability
   - CV, project proposal (can be uploaded and registered in system)
4. Registration of **employment acceptance**:
   - Staff accepts student who got interested
   - Send notification for next process
5. Registration of **stakeholders**:
   - System admin
   - Management
   - Staff
   - Public user

Proposed Process

- Staff register projects in system

- Potential student browse list of projects available

- Student set interest in the project – upload CVs and write-up proposals – register interest, skill, experience in the system

- Staff view interested students and set appointment for next process – set acceptance in the system

- Management view statistics of employment

Online Pay2Use System for Service Labs

Problem Statement

- Pay2Use Card is a prepaid payment system established for Service Unit laboratories in UTMKL

- Analytical 1, Analytical 2 and Microscopy Laboratories are service labs that acquire payments upon sample testing and analysis

- Current system using Google Sheets to record all registrations, payment transactions, and analysis/testing records

The current system

- Customers filling up application form with a desired amount – no maximum and minimum amount – get a Pay2Use card

- Customers with Pay2Use card apply for sample testing and analysis at selected lab via Google Form

- Customers bring testing sample with 2 copies of application form to the lab manager

- Lab manager deducts the service amount from Pay2Use card

- Lab manager releases the testing result to customers

Process summary
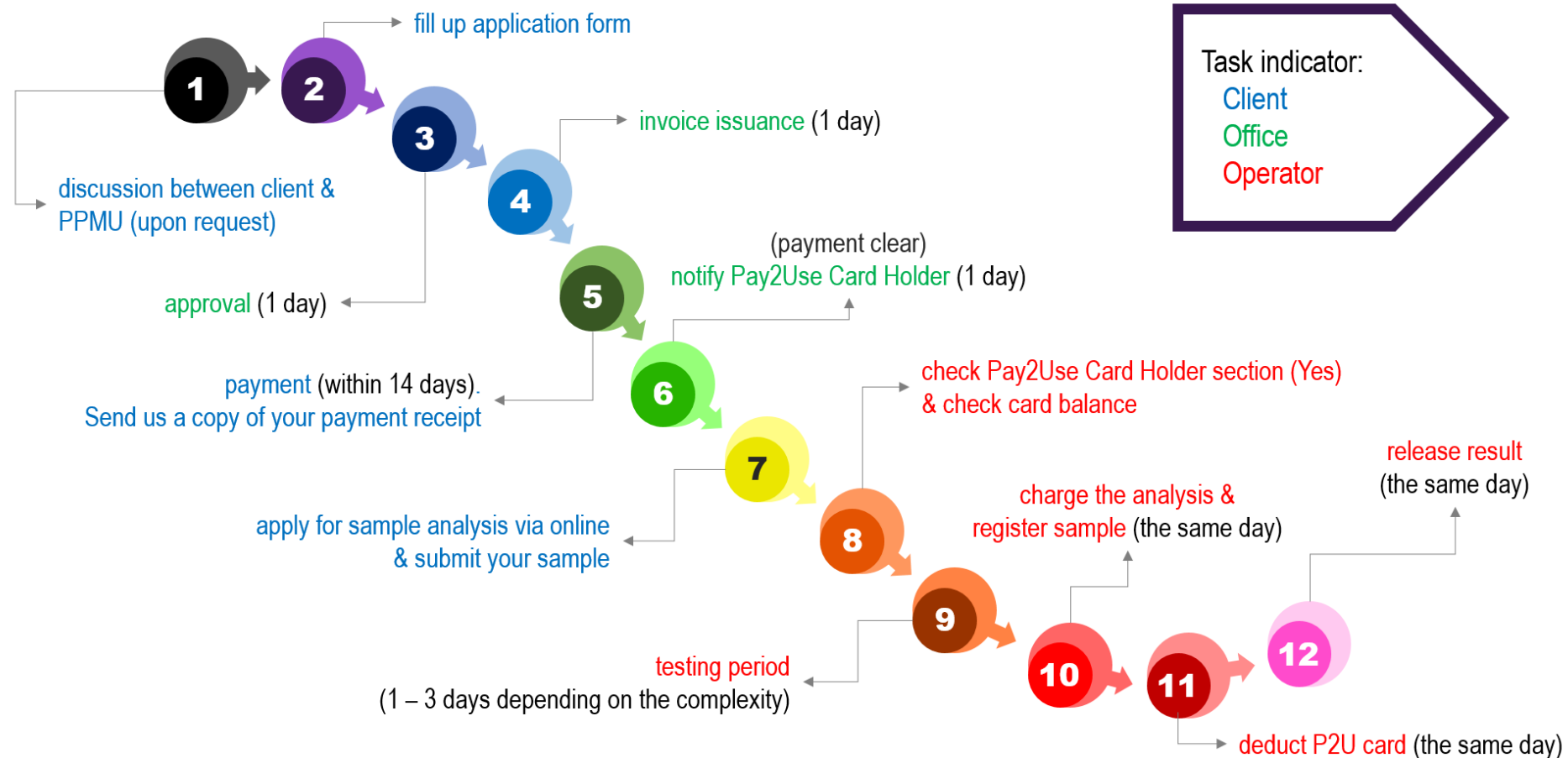
Proposed Modules – An Online System

- Registration of **stakeholders**: lab managers, lab operators, customers (staff/student/public/company), management
- Registration of **laboratories**
- Registration of pay2use **card applications**
- Registration of pay2use **card top-up transactions**
- Registration of **sample testing records**
- Automatic **notifications**
- Electronic **reports** – invoice, receipt, sample testing report