PROJECT PROPOSAL:

INTEGRATED HOSPITAL MANAGEMENT SYSTEM

PROPOSAL BY: QET SYSTEMS LTD

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14th April 2016

Our Ref: **PROP-027/2016**

Your Ref:

Dear Sir/Madam,

RE: TECHNICAL PROPOSAL FOR IMPLEMENTATION OF INTEGRATED HOSPITAL MANAGEMENT SYSTEM

We hereby present for your consideration our proposal for the implementation of a Hospital management System.

We have in this document, included the proposed designs of our systems, information on our ability to implement the scope of services described, our company profile with details of experience in similar assignments.

We wish to submit that we are a reputable solutions provider with proven ability to deliver software and hardware solutions. Our technical capability and good practices based on defined working methodology coupled with our experience in service delivery will ensure that the intended scope of work is met in entirety.

We would greatly wish to work with you if our proposed solution meets the requirements of the Board.

Sincerely Yours,
PRINCE MUNENE MBABU,
HEAD OF OPERATIONS,
QET SYSTEMS.

HOW ARE WE DIFFERENT?

"A fresh perspective. Eager to deliver and very diligent in their work…" ~ Dr. P. K. Kihato

HISTORY

QET is a limited liability company based in Nairobi, Kenya. Founded in 2011, our prime focus is on ICT services which include:

- ➤ Technical assessment
- ➤ ICT consulting.
- ➤ Design and building of web based systems
- ➤ Network design and implementation
- ➤ Web design
- ➤ Embedded systems programming
- ➤ Industrial PLC and SCADA systems.
- ➤ Social Media Marketing.

The founding partners are a group of Electronic and Computer engineers from JKUAT with diverse specialties like cyber security, system optimization and communication design.

EXPERIENCE

Our team has a combination of over 12,000 man hours in personal and industry assignments. Agile development teams ensure that clients are promptly informed on progress changes made to their work.

We have created all our in house applications; from email to project collaboration to hospital systems. Our senior engineers attend workshops both locally and abroad in order to ensure reliability of our systems and to keep up with modern trends in this dynamic computer age.

At QET, we strive to go the extra mile for our clients. We incorporate rich, intuitive user interfaces and simplified control logic to ensure a seamless user experience.

PHILOSOPHY

Here at QET, we live by one simple philosophy:

'Something is what it is and not something else'

Translation: there are no excuses for bad design; a project is never complete until the client says it is. By using this as our ethical guide-line, we have been able to satisfy all our clients.

CONFIDENTIALITY STATEMENT

This document contains confidential information from QET and our partners, which is provided for the sole purpose of permitting the recipient to evaluate the proposal submitted herewith. In consideration of receipt of this document, the recipient agrees to maintain such information in confidence and not to reproduce or otherwise disclose this information to any person outside the group directly responsible for evaluation of its contents, except that there is no obligation   to maintain   the confidentiality of any information which was known to the recipient prior to receipt of such information from QET and or our partners, or becomes publicly known through no fault of recipient, or is received without obligation of confidentiality from a third party owing no obligation of confidentiality to QET and or our partners.

We pledge that we are guided by ethical and professional standards and values and we can't disclose any information about our client unless authorized by the client in writing.

Q-Afya Hospital Management System

QET is proposing to supply, install and implement a versatile solution system running on the MySQL Database and PHP scripting language combined with JavaScript. This combination comes up with a highly flexible, configurable and scalable system that features many unique options and can be easily enhanced with custom options depending on the hospital's future and current needs by request.

What is Q-Afya?

Q- Afya is a Hospital Management system.

- ❖ It is Web-based meaning that it is built using web technology.
- ❖ Programming languages used include: HTML 5.0, CSS3, PHP5, MySQL, XML and JavaScript. Other techniques used include asynchronous JavaScript (Ajax) and JavaScript Object Notation (JSON).These have all been used to create a perfect user-friendly system with an interface that gives the system user an experience like no other.
- ❖ The web-based system gives the users the ability to work from anywhere in the world provided they can access internet.
- ❖ In case the system is to be used in a specific location only; a local host server can be used and this option does not require internet services.
- ❖ Q-Afya is incorporated with a multi-user, multi-level authentication system which ensures that different users can only access the panels where their work is.

Computer software has revolutionized how we find, share and store information. The digital world is moving at a rapid pace and doesn't show any signs of slowing. For businesses, digitized operations have become a fundamental part of success. But why is this software so important? How significant is the impact of using it to run your operations? We're glad you asked.

Why Q-Afya?

Computations
Computation of patient bills, and other charges is accurately done and is controlled by parameters that users can change.

Online
Any time a user can print off the balance sheet and P&L. Any transaction made on the front end affects the final accounts leaving no room for batching.

Multi-user and Multi-Locations
As long as server is powerful any number of users can work in the System concurrently. Remote branches can access the system over the internet.

Security

Each user created in Q-Afya System can be restricted to certain levels of access depending on their duties and responsibilities.

Set-up time
Due to its simplicity, Q-Afya takes a short time for users to have their books in the system.

Accountability
With Q-Afya, all the Stock and commodities in the Hospital like foodstuffs, housekeeping items etc are managed with tracking for every piece used. Reports can be pulled anytime to ascertain whether the staff are managing the commodities well.

Robust, with good backup facilities
The server backs up the database automatically after every 24 hours.

Generating Reports
Q-Afya is designed in such a manner that it generates different kinds of reports for any duration of business.

Smart Card Technology
Q-Afya is designed to print Bar coded Patient Plastic Cards, a feature that solves many problems which come due to lack of a proper way of identifying a patient with a unique system number.

Customization
Q-Afya System can be customized according to the customer needs. We pride ourselves of building custom systems.

Training
Q-Afya comes with a comprehensive user manual that explains all the system operations. Training is also provided to users based on their needs.

Web-based
Online systems are the future of digital systems. We bring you the future right now.

Q-Afya Functionalities/Modules

The Features/Modules breakdown is as below:

1. Dashboard

The dashboard houses four other minor modules:

<u>i) Appointments Manager</u>

- ✓ Adding new Patient appointments and printing appointment note.
- ✓ Editing upcoming appointments
- ✓ View upcoming appointments.

<u>ii) Summaries Mini-Panel</u>

- ✓ Graphical Representation of the income summary. (Income vs. Cost) for the past 7 days.
- ✓ Graphical comparison between the numbers of new patients, Revisits and Reviews received in the hospital.
- ✓ Pie chart representation of the Accounts Ledgers (Assets, Expenses, Revenue, Equity and Liabilities).

<u>iii) Personal Manager</u>

- ✓ View messages sent from the system and other users.
- ✓ Send Messages to various users, user groups or everyone.
- ✓ View online users for initiation of chats.
- ✓ Add, Edit and update personal tasks once completed. The tasks come with a reminder feature.

<u>iv) Queue Manager</u>

- ✓ View In real time all patients in various rooms and also all patients current on queue.
- ✓ Get automated user alerts when patients are queued to their rooms
- ✓ Get automated patients dispatch alert.
- ✓ Track patient movement within the hospital.
- ✓ Improve services delivery by tracking waiting time and services.

Image 1: Q-Afya Dashboard

2. Reception

- ✓ Registration of New Patient- capturing the personal details (Demographics), next of kin details, employer details, insurance scheme details. Thumbprints can be captured at this stage using thumbprint scanners. Photo of the patient is also captured during this stage.
- ✓ Quickly search patients by names, telephone no, email address ID no and other patient details.
- ✓ Manage patient information where editing is needed for change .
- ✓ Patient Chart: Contains all the information about a certain patient. From consultation files, patient bills, admission forms, discharge summaries etc; this panel has everything the system has on a certain patient.
- ✓ Quick Billing of patients for consultation services.
- ✓ Queue patients to different department / rooms .

Image 2: Patient Data Management

3. Triage

- ✓ Quick and easily input vital signs of the patient (Temperature, Weight, Blood Pressure, Pulse Rate, Respiratory rate, Random Blood sugar).
- ✓ Enter any known problems/allergies plus any other details of the patient.

Image 3: Triage Panel

4. Consultations

NB: This module is replicated in the following modules/ departments: General Consultations, Pediatrics, Eye Clinic, Dental Clinic, Physiotherapy, Emergencies, HDU, Dialysis, Ambulance, MCH.

- ✓ Aided entry of ,family & socio-economic history ,past medical history of presenting illness ,physical examination and other clinical notes.
- ✓ Computers assisted differential diagnosis and drug prescriptions.
- ✓ View the vital signs of the patient as pre-entered by the nurse
- ✓ Review previous visits notes, prescriptions, investigation and patient history
- ✓ Quickly select/enter diagnosis for each patient.
- ✓ Send the patient to another department e.g. physiotherapy or eye clinic to see a specialist.
- ✓ Prescribe drugs , order investigation and view results ones posted by the relevant department.
- ✓ Prescribed drugs are automatically reflected at the pharmacy where they are located by patients.
- ✓ Clinical instruction template to be filled by the doctor while sending laboratory, x-ray and ultra-sound request.
- ✓ Patient bill is automatically updated whenever an investigation is requested or a prescription is made.

- ✓ Recommend patient for admission and record admission notes.
- ✓ Review inpatient by viewing cadex, prescription administration chart and vitals entries. Doctor can also write their progress notes in this panel.
- ✓ Make patient appointments.
- ✓ A billing module is provided for any sort of special services offered that the doctor might want to bill.
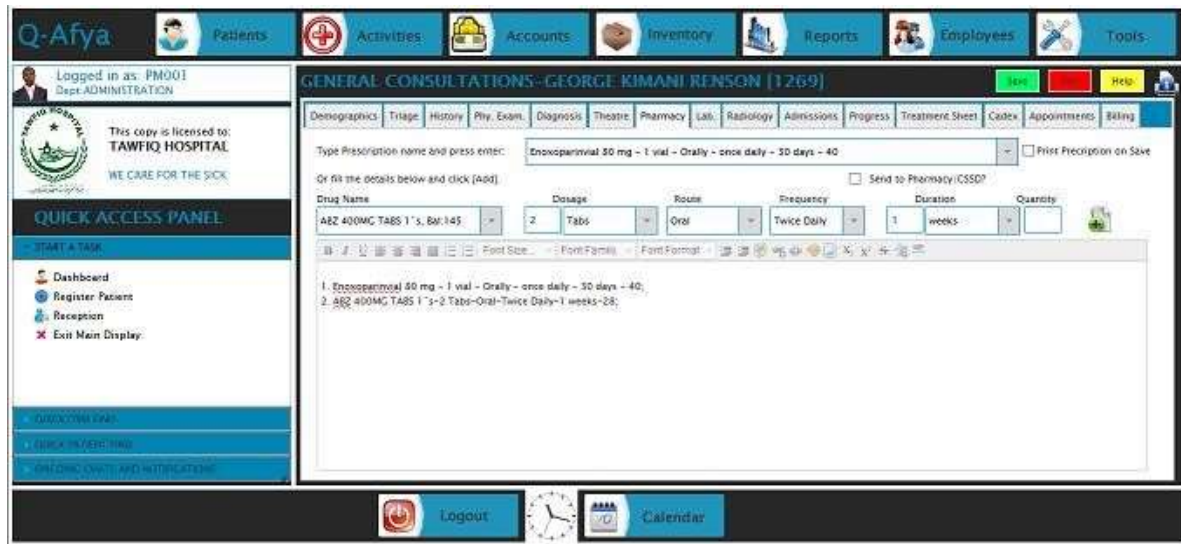

Image 4:Consultations/Doctor's Panel

5. Laboratory

- ✓ Billing of Lab tests posted by the doctor.
- ✓ Lab technologist can view if requested lab test has been paid for before proceeding with the test for cash paying patients.
- ✓ Manage all lab requests(both internal and external).
- ✓ All lab tests are standardized and pre-configured in the system.
- ✓ Quickly and easily fill lab results and send back to the doctor.
- ✓ Automatically generate lab reports indicating time of request and time test is done.
- ✓ Automatically append the name of the technician connecting and posting the result.
- ✓ Track all laboratory consumables and get a alerts on stock levels .
- ✓ View a printable lab result

Image 6:Laboratory Analysis Panel

7. Radiology

- ✓ Billing of Radiology scans posted by the doctor.
- ✓ Radiology technologist can view if requested services has been paid for before proceeding with examination for cash paying patients.
- ✓ Manage radiology requests(both internal and external) .
- ✓ Most radiology tests are preconfigured in the system.
- ✓ Quickly and easily fill results and send back to doctor.
- ✓ Upload scans to the system for viewing by the doctor.
- ✓ Automatically generate radiology report showing time of request and time done.
- ✓ Automatically append the name of technicians collecting and posting the results.
- ✓ View a printable radiology result.

Image 7: Radiology Panel(X-Ray and Ultrasound)

8. Theatre

- ✓ Billing of procedures performed on the patient in theatre.
- ✓ Taking down of theatre notes on the patient file.
- ✓ Theatre timetable to manage all upcoming theatre procedures.
- ✓ Automatically generate theatre report showing time of request and time done.
- ✓ Automatically append the name of theatre technicians posting the theatre notes.
- ✓ View a printable document showing the theatre notes.

Image 8: Theatre Module

9. Pharmacy

- ✓ Billing of Patient's drugs as prescribed by the doctor.
- ✓ Pharmacist can view if drugs have been paid for before issuing to cash paying patients.
- ✓ Can print prescriptions if required.
- ✓ Maximum and minimum stock levels (for stock control and reorder)
- ✓ Ability to control expiry dates
- ✓ Automatic mark-up unit cost.
- ✓ Track stock movement (Bin Card).
- ✓ Special treatment bonus stock and discount.

Image 9: Pharmacy Module

10. Payments/ Cashier Module

- ✓ Bills posted from all other departments are viewed in this module for payments.
- ✓ The bill can be broken down to be paid using several methods of payment i.e. Cash, Credit, Companies(Insurance companies), and Bank(e.g. Lipa na M-Pesa).
- ✓ The total payments have to match the total bill for payment to go through. In case of credit, the transaction has to be authorized by a user with higher powers.
- ✓ Cash payments automatically hit the cashier's ledger for End-Of-Shift Cash reconciliation summary report.
- ✓ Print receipts and invoices incase of company patients.

Image 10: Payments Module

11. Records

- ✓ Admitting patients to the system, noting down their mode of payment and the doctor in charge of them.
- ✓ Automatic generation of printable admission report.
- ✓ Discharge of patient noting down diagnosis code and patient diagnosis.

11. Records Module

12. Inpatients Management

- ✓ View all available beds under ward manager.
- ✓ Admit patient to specific bed via the system
- ✓ Carry out bed and ward transfer.
- ✓ Update the system's prescription administration sheet each time a drug is administered.
- ✓ Record patient's vital entries each day . The system automatically generates graphical representation of these figures in terms of bar and line charts.
- ✓ A module for nurses to type their cadex.
- ✓ Update patient's bill as drugs/services are administered.
- ✓ Finalize bills and automatically generate patient's medical bill report.
- ✓ Discharge patient via the system and automatically generate discharge summary.

13. Procurement

- ✓ A panel for finding stock items using several parameters.
- ✓ Processing GRN(Goods Received Note) during Purchases(Goods Received Inwards).
- ✓ Managing stock requests and transfers from other departments.
- ✓ Regular and random stock taking.
- ✓ Making stock adjustments in case of stock variance. This has to be approved by higher powers though.
- ✓ Stock Valuation of the whole store.
- ✓ Stock usage register to manage non-billable items like foodstuffs.
- ✓ Goods returned Outwards to manage items returned to suppliers.
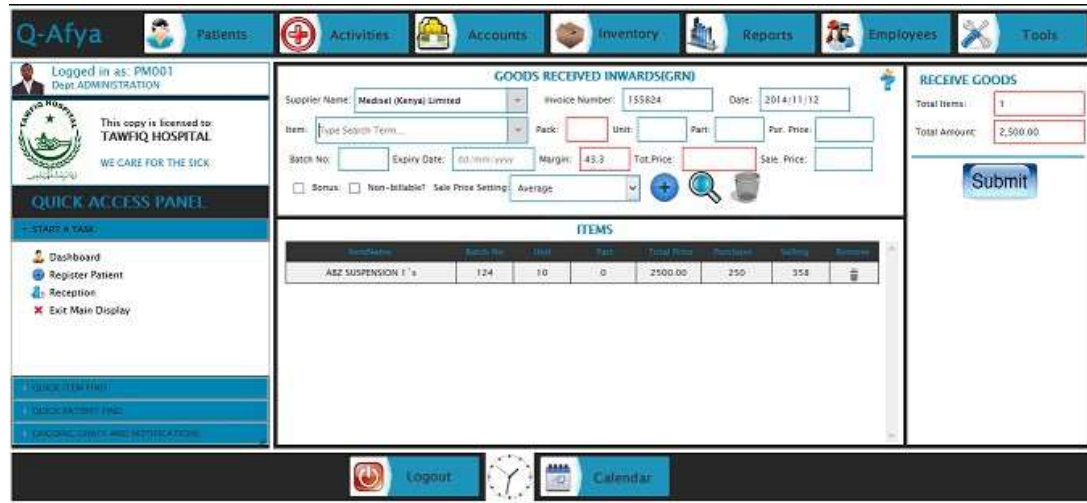- ✓ Raising LPO's which are then authorized by the accountant before being forwarded to the supplier.

Image 13: Procurement(Goods received Inwards)

14. Stores & Pharmacy Management

- ✓ Ability to create multiple storage locations for your stock items.
- ✓ Issue stock items and pharmacy and other departments.
- ✓ Track stock movement from purchases to sales (also generate reports).
- ✓ Stock level and expiry date alerts.
- ✓ Stock ledger.
- ✓ Automatic update on stock ledger once goods are received .
- ✓ Carry out stock take and adjustments.
- ✓ Generate variance report.

Image 14: Stock Request Module

15. Accounts Module

- ✓ Making journal entries to debit/credit various ledgers.
- ✓ Finding journal entries.
- ✓ Chart of Accounts plus a provision of adding new accounts, editing and deleting existing ones.
- ✓ Debtors Management :Adding and editing Debtors(Insurance Companies); receiving payments to clear invoices, printing out debtors' statements for any period of business.
- ✓ Creditors Management :Adding and editing Creditors(Suppliers); making payments to clear invoices, printing out creditors' statements for any period of business.
- ✓ A panel for finding invoices and previewing them.
- ✓ Chief Cashier cash collection at the end of cashier shift.
- ✓ Expenses Management(Petty Cash Management).
- ✓ Chief Cashier bank deposits to various bank accounts created in the system.

Image 15: Accounts(Debtors Management)

16. Human Resource Management

- ✓ Employee data management-Adding Employee data, editing and deleting.
- ✓ HRM documents-A portal where employees can download HR documents e.g. Employee Self-Assessment Form for filling.
- ✓ Attendance-A sub-module where employee attendance is taken. The total number of days worked are transferred to the payroll for calculation of the basic salary.
- ✓ Leave management-Employee leave request, Leave authorization and Leave Calendar.
- ✓ Payroll-Processing employees' pay using the current tax, nssf and nhif rates. Pay slips are also printed from this panel.
- ✓ Payroll Settings-Editing the tax rates, nhif rates, nssf rates and overtime rates in case of future changes.

Image 16: HRM Module(New Employee Information)

17. Reports

- ✓ Cashier Daily Summary.
- ✓ Financial Statements-Trial Balance, Income Statement, Balance Sheet.
- ✓ Income Report-Today Income, All Income, With profit, With Loss, By Cashier, By Item, By Department, By Patient, By Doctor, Unposted Entries.
- ✓ Invoices Reports- Today Invoices, All invoices, By Company.
- ✓ Receipts Reports.
  Procurement-
- ✓ Goods Received Report-By item, All, By Supplier.
- ✓ Goods Returned Report-By item, All, By Supplier.
- ✓ Reprint-Goods Received Note, Goods Returned Note, Local Purchase Order.
- ✓ Invoice Listing-Inwards and Outwards.
- ✓ Summarized Bin Card.
- ✓ Inventory-All, By Category, By Supplier.
- ✓ Expiry Report.
- ✓ Reprint Variance Report.
  Health Reports-Reprint Admission Form, Reprint Discharge Summary, Diagnosis Reports, Birth Reports.
  Payroll Reports-Detailed Monthly Report, Monthly Bank Summary, Individual Bank Report, Salaries Summary, Employee Summary, Individual Pay slips, All Pay slips.

  - ✓ Stock Usage Reports
  - ✓ Ledger Reports
  - ✓ Queue Reports
  - ✓ Messages Reports

- ✓ Activity Log-All, By User.
- ✓ Debtors List
- ✓ Creditors List
- ✓ System Users List
- ✓ Stock Movement Report.
- ✓ Employees List
- ✓ Goods Price List-All, By Section
- ✓ Services Price List-All, By Section
- ✓ Stock Transfer Report-All, By Dept.
- ✓ Bin Card
- ✓ Re-order Level-All, By Supplier.
- ✓ Patients Reports-All Patients, In-Patients.
- ✓ Inpatients Reports
- ✓ Outpatient Reports
- ✓ All Patients Reports

Image 17: System Reports

18. Tools and Administrator Settings

- ✓ Hospital Details Management.
- ✓ System Users Manager-Adding or Editing Users. The access level is also managed in this panel.
- ✓ User Access Rights-Discriminating what each access level can do and not do.
- ✓ Items Access Rights-Discriminating what items (goods and services) each user can see and not see (department based).
- ✓ Editing Account Details-Change Login Credentials.
- ✓ Set up Inpatient Ward Beds.
- ✓ Set up Computer Internet Protocols.
- ✓ Set Up Banks.
- ✓ Set up External medics.
- ✓ Medical Notes.
- ✓ Add/edit Medical Data.
- ✓ Import Database
- ✓ Export Database (The system does this automatically every 24 hours).

Image 19: Tools and Administrator Settings(Set up Computer IP's)

19. Other Unique System Features

- ✓ Highly customizable to suit your size and exact need.
- ✓ Consistent and attractive user interface that makes it easy to use.
- ✓ Fast, stable, reliable and secure.
- ✓ Perfectly integrates with your hospital workflow.
- ✓ Well organized and informative reports that can export to Word, Excel and PDF among other formats.
- ✓ According that smoothly integrates with all your hospital opera with minimum user intervention.
- ✓ Readily available & well organized data that can be used for different types of analysis.
- ✓ Remote access view in real time and any time what is happened your facility from anywhere in the world.

Happy Q-Afya Clients (Hospitals Only)

Tawfiq Hospital,

P.O BOX 629-

80200, Malindi

Neema Hospital,

 Kahawa Sukari

Mandeq Medical

Centre,

Mogadishu,

Somali.

Nairobi East Hospital,

P.O BOX 51863-

00100, Nairobi

Trinity Care Center,
Ngong,
Nairobi

Kitui Oasis Hospital,
Kitui

Caritas Community Hospital,
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