

**SOFTWARE SPECIFICATION**

**DOCUMENT**

**METERING SERVICE HUB**

**Application (Meter Order, MOJEC VEND, Payment System)**

**MOJEC INTERNATIONAL LIMITED**

244/246 Apapa Oshodi Expressway

100263 Lagos Nigeria Africa admin@mojec.com

| **VERSIO**  **N #** | **IMPLEMENTE D**  **BY** | **REVISIO**  **N**  **DATE** | **APPROVE**  **D**  **BY** | **APPROVA L**  **DATE** | **REASO**  **N** |
| --- | --- | --- | --- | --- | --- |
| **1.0** | *Ajibade Hammed Awoyemi*  *Oluwatosin* | *09/03/2021* | *Mr. Wole*  *Solanke* | *09/03/2021* | *Initial*  *Draft* |
| **2.0** | *Wole Solanke*  *Ajibade Hammed Awoyemi*  *Oluwatosin* | *03/06/2021* | *Mr. Wole*  *Solanke* |  | *Reviewed Draft* |
| **3.0** | *Wole Solanke*  *Ajibade Hammed Awoyemi*  *Oluwatosin* | *24/07/2021* | *Mr. Wole*  *Solanke* |  | *Reviewed Draft* |
| **4.0** | *Wole Solanke*  *Ajibade Hammed Awoyemi*  *Oluwatosin* | *02/09/2021* |  |  |  |

**Introduction**

This document is designed to detail the software specifications of the application to be used to provide solutions to the consumer technical issues beyond the installation services currently being offered by MOJEC. This software will be named the Metering Service Hub (MSH) that will take of technical problem from the client with a click and in no way represents the final name of the software.

**Problem Statement**

Currently, MOJEC International Ltd renders survey and installation services of smart meter to our customers, it is being discovered that beyond the installation problem, our customers might have other technical issues with or without their meter during use and sometimes might know how to get this issue resolved or who to contact on solutions. On this note, Meter Service Hub (MSH) is brought to business where it will address the problem stated as we want our customers to be able to have this technical issue service rendered to them without stress by just following the necessary steps using the MSH app at their comfort. MSH is to provide a solution to consumers going beyond the installation solution being offered by MOJEC currently, so MSH will cater to meter technical problems from the consumers.

MSH is an application should match technicians with the consumer to resolve their technical issue on request in a seamless way sharing some similarities with Uber features. By introducing MSH, our customers have an idea on who to contact and what to do when they experience any technical difficulties and the organization manages the work process of this technical issues by improving our brand reputation as reliable and certified technicians will be sent to carry out the assignment.

**MSH MODULES**

**MSH –** SERVICE ORDER SERVICE

Meter Service Hub (MSH) is an application where customers will sign up, to lodge their complaints and request service on any of their technical issues. MSH has some similarities to Uber in that it automatically matches technicians with customers to handle their technical issues in a smooth manner in a single click.

**MSH –** METER PAYMENT

The Meter Service Hub (MSH) also contains a meter payment module, which generates a payment reference for each meter request. And each consumer can pay for their recommended meter with a variety of payment methods. Following payment, the payment gateways send an API notification to the MSH application.

**MSH –** MOJEC VEND

Electricity vending service is the subject of this module. Customers can, for example, purchase electricity directly from the mobile application. This vending service is compatible with both Estate and Disco meters.

The token generating technique is implemented through the use of a Vending API. The program interfaces with TSM for estates, and the Disco API for Disco customers to vend for electricity.

**TSM DOCUMENTATION**

https://stsweb.prismcrypto.co.za/docs/PrismVend/TsmWeb-STS Web Vending API.pdf

**MSH** - CHATBOT

The role of the system is to provide a chatbot that will be able to answer questions related to the MSH services. It will provide an interface for the users to interact with the system and an administration interface.

A user is anyone who would like to visit the website and engage in a conversation. As well as talking the user should be able to submit a log of whether he is satisfied with an answer and produce a link. Other than communicating, the user should be able to rank the system. The rank of the system should be a five-star ranking system where one is poor and 5 is excellent. A user should also be able to write a review using the feedback form.

The administrator of the system shall be able to log in using a user name and a password. The responsibility of the administrator will be to maintain the system by adding questions and answers to the database and by updating current information sets when necessary. Furthermore, he should be able to view the user ranking, feedback messages and logs. The system shall provide its users with spell checking suggestions on screen, when they make such errors. Moreover, the parsing of sentences will avoid sending to the system words that do not form a sentence.

Functional Requirements

1. Chatting:

a. The system should allow users to chat.

b. The system shall inform the user if an answer is not available.

c. The system shall inform the user about spelling mistakes.

d. The system shall inform the user about the validity of the sentence.

2. Querying:

a. The system should allow users to search for information about MSH. b. The system should allow users to search for information about tuition fees. c. The system should allow users to search for information about accommodation.

3. Logs:

a. The system should maintain a log of the current question and answer if the user is not satisfied.

1. Feedback:

 a. The user should be able to leave feedback, which is comprised of a text message and a rating.

2. Administrative system

a. Information management: The administrator should be able to to add, update and delete  questions, answers and keywords.

b. Log management: The administrator should be able to view and delete logs.  c. Feedback management: The administrator should be able to view and delete feedbacks.

**MSH –** API INTEGRATION

This comprises the integrations that take place between several modules of the application, as well as the various applications that help the facilitates features in the application.

**MSH- METER ORDER APPLICATION MODULES**

MODULES

ORDER SERVICE MSH - CHATBOT **MSH –** METER

**MSH –** SERVICE

PAYMENT

ADMINISTRATIVE USERS

**MSH –** MOJEC VEND

**MSH –** API INTEGRATION

**1.** Superadmin : Superuser accounts are highly privileged accounts primarily used for administration by specialized IT employees. These users/accounts may have almost unrestricted access to a system or ownership of it.

**2.** Developer: An application developer is a critical part of technical and/or project management teams responsible for ensuring user needs are met through the deployment and updates of software.

**3.** Project manager & Project Team: These are the personnels that handles the sevral features managing the individual operation features and funtionality of the Application.

**4.** Finance & Audit Team: These users have access to specific payment and accounting reports and functions.

**5.** Management: The management have an overview of the metrics and reports on the system to enable them make decisions based on trends and the dashboard reports they analyse

OPERATION USERS:

The Operation users of the application

a) The Customers: Users of the application who want to seek technical services through the Order Service Module are referred to as customers. Customers are also users who pay for their meters through the Meter Order Module on the system. They are also clients who use the Vending module to make purchases for their electricity.

b) Technician: The technicians are system users who have been onboarded by MOJEC INTERNATIONAL to provide technical support for the services that the clients have requested.

**USER AND SYSTEM REQUIREMENT**

ADMIN DASHBOARD

1. MSH SERVICE REQUEST JOB TREND (Daily, Weekly, Monthly, Yearly): a. Pending Request: This indicator displays the number of service requests that have been assigned but have not yet been closed out or completed.

b. Completed Request: This is a measure that shows how many service requests have been performed. This data is also displayed as a graphical representation with a 24-hour historical record.

2. MSH PAYMENT METRICS TREND (Daily, Weekly, Monthly, Yearly): a. Total Daily Payment: This graph depicts the daily payment that is processed on the system.

b. Total Payment Reference: The total number of payment references generated every day is shown below.

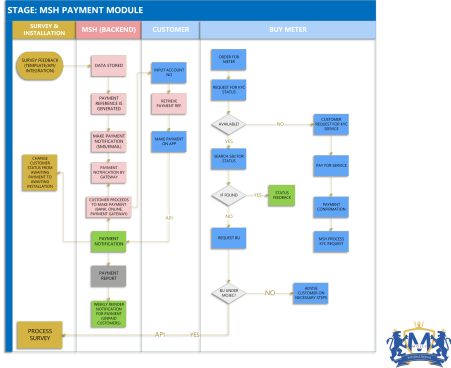
3. MSH VENDING METRICS TREND (Daily, Weekly, Monthly, Yearly): a. Total Daily Vending: This graph depicts the daily number of vending transactions.

b. Total Payment Reference: The total number of payment references generated every day is shown below.

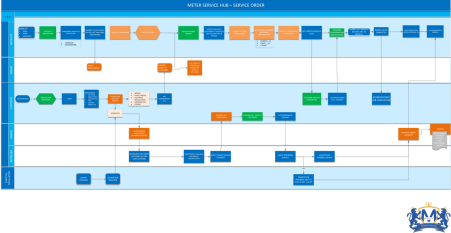
4. JOB REQUEST TYPE COMPARATION (Daily, Weekly, Monthly, Yearly): A graphical representation that depicts a comparison of the different service request over a particular period of time. This graph can be filtered (Daily, Weekly, Monthly, Yearly)

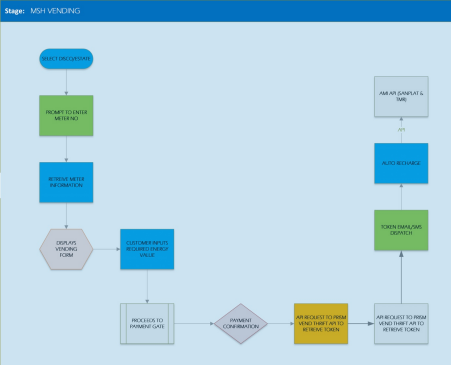
**Process Flow / User Experience**

*MSH- Meter Order for MAP Customers (Android, IOS & WEB)*

**

*MSH- SERVICE ORDER (Android, IOS & WEB)*

*MSH- VENDING (Android & IOS)*

**

**API SPECIFICATION**

The is an system capable of managing orders for meters by customers (Upfront Payers and Bank Financed) within its designated areas, carrying out survey activities including tracking and monitoring installation activities for meters as well as ensuring seamless workflow transition from one stage of implementation to another.

**This document describes the integration between a Integrating partners and**

Overview

1. You need a valid API Key to send requests to the API endpoints. You can get your key from the integrations dashboard.

2. The API has an access rate limit applied to it.

3. The API will only respond to secured communication done over HTTPS. HTTP requests will be sent a 301 redirect to corresponding HTTPS resources.

4. Response to every request is sent in JSON format. In case the API request results in an error, it is represented by an "error": {} key in the JSON response.

5. The request method (verb) determines the nature of action you intend to perform. A request made using the GET method implies that you want to fetch something from , and POST implies you want to save something new to .

6. The API calls will respond with appropriate HTTP status codes for all requests. Within Postman Client, when a response is received, the status code is highlighted and is accompanied by a help text that indicates the possible meaning of the response code. A 200 OK indicates all went well, while 4XX or 5XX response codes indicate an error from the requesting client or our API servers respectively.

**Endpoints**

The API is accessed by making HTTP requests to a specific version endpoint URL, in which GET or POST variables contain information about what you wish to access. Every endpoint is accessed via an SSL-enabled HTTPS (port 443), this is because everything is using OAuth 2.0.

Everything (methods, parameters, etc.) is fixed to a version number, and every call must contain one. Different Versions are available at different endpoint URLs.

| Endpoints Parameters | |
| --- | --- |
| PAYMENT  REFERNCE  GENERATION | **1. ARN**  **2. A/C No**  **3. Customer Name**  **4. Email**  **5. leT**  **6. Disco** |

|  | **7. Meter recommended** |
| --- | --- |
| KYC UPLOAD | **8. ARN**  **9. A/C No**  **10. Customer Name**  **11. Email**  **12. leT**  **13. Disco**  **14. Address**  **15. Landmark**  **16. BU**  **17. UT**  **18. FEEDER**  **19. DT**  **20. Tariff**  **21. Program (NMMP/MAP)** |
| Survey Feedback (Customer Data)  Upload {Template or API} | **1. accountNo**  **2. orderReference (Optional)**  **3. Status**  **4. Customer Name**  **5. Phone no**  **6. Address**  **7. Feeder Line**  **8. Total Amapage**  **9. No of Service Wires**  **10. Condition of Wiring** |

|  | **11. Output Cable Distance (Load Wire)**  **12. Input Cable Distance (Supply to Meter)**  **13. Cable size 16mm or 25mm or 35mm**  **14. Service Wire Traceable**  **15. Meter Point Wire Distribution**  **16. Reason for Replacement**  **17. Correction Required By Customer Premises 1**  **18. Premises 2**  **19. Premises 3**  **20. Meter Readiness**  **21. Recommendation**  **22. Meter Required**  **23. Installation Type**  **24. Customer Type**  **25. I have read terms and conditions**  **26. Signature** |
| --- | --- |
| SMS/EMAIL  DISSEMINATION | **1. Broadcast message**  **2. Meter Required**  **3. Amount**  **4. Payment reference** |
| PAYMENT  CONFIRMATION | **1. ARN**  **2. Account number**  **3. Payment reference**  **4. API status log** |

| Separation request from SI App | **1. ARN**  **2. A/C No**  **3. Customer Name**  **4. Email**  **5. leT**  **6. Disco**  **7. Address**  **8. Landmark**  **9. BU**  **10. UT**  **11. FEEDER**  **12. DT**  **13. Tariff** |
| --- | --- |
| Separation job  feedback | **1. ARN**  **2. A/C No**  **3. Separation Status**  **4. accountNo**  **5. orderReference (Optional)**  **6. Status**  **7. Customer Name**  **8. Phone no**  **9. Address**  **10. Feeder Line**  **11. Total Amapage**  **12. No of Service Wires** |

|  | **13. Condition of Wiring**  **14. Output Cable Distance (Load Wire)**  **15. Input Cable Distance (Supply to Meter)**  **16. Cable size 16mm or 25mm or 35mm**  **17. Service Wire Traceable**  **18. Meter Point Wire Distribution**  **19. Reason for Replacement**  **20. Correction Required By Customer Premises 1**  **21. Premises 2**  **22. Premises 3**  **23. Meter Readiness**  **24. Recommendation**  **25. Meter Required**  **26. Installation Type**  **27. Customer Type**  **28. I have read terms and conditions** |
| --- | --- |
| Get Customer status | **1. ARN /**  **2. A/C No /**  **3. Customer Name /**  **4. Email /**  **5. leT /** |
| API log |  |

| Loan Paayment  Request | **Param Name Description**  loanReference Reference for the loan  loanRequestStatus The approval status for the loan. Possible options are  amount Approved loan amount  duration Tenure of the approved loan.  interestRate Interest rate on the approved loan.  loanAuthCode Loan authorization code.This will be unique per authorization  loanAccountNumber The customer account number attached to the loan  settleAccount The the agreed account in which the customer loan is settled  Payment Reference |
| --- | --- |
|  |  |
|  |  |

| **MSH- Meter Order for MAP Customers (Android & IOS)** | | | |
| --- | --- | --- | --- |
| User | **Action** | **Description** | |
| Backend | Survey Feedback (Customer Data) Upload {Template or API} | After survey has been done, the survey and installation App feeds the MSH App the survey data containing the | Template |

|  |  | customer details which can be uploaded via an API or a template manually uploaded by an administrator (MOJEC). This data is stored on MSH Database. | API |
| --- | --- | --- | --- |
| API | Payment Gateway Integration | Payment gateway Integration e.g. Interswitch, Paystack, Interswitch | |
| Payment Reference Number Generation | After successful batch upload of customer data to the system, the System generates payment references for each customer information batched on the system. The payment references are generated with aid of payment gateways (Remitta, interswitch etc.) integrated with the system. | |
| The following parameters are passed to the payment Gateway via API to generate the Payment reference | |
| • Customer name | |
| • Customer Phone no | |

|  |  | • ARN | |
| --- | --- | --- | --- |
| • Account no | |
| • Disco | |
| • Business Unit (BU) | |
| • Undertaking | |
| • Feeder | |
|  |  |  |
| SMS &Email Notification of Payment Advice | Customer is alerted and advised to make payment after successful generation of the unique reference number for payment. The customer receives this notification via SMS and email. | |
| Customer | Payment Landing Page | Enter the Payment reference issues via SMS and Email to make payment for the meter recommended. In the case of customers that didn’t get email or SMS. Customers can proceed to retrieved their payment reference by entering their account number. | |
| And Customer is redirected to payment dashboard to make payment if he or she has not used other method of payment. | |

|  | Proceeds to make payment & Payment  Confirmation | Via web or mobile application, Customer proceeds to make payment by entering the unique reference number received via SMS or Email. The system automatically verifies the number before accepting payment, after verification, the customer is allowed to make payment after which the payment is processed. | |
| --- | --- | --- | --- |
| Payment can also be made via web page using payment reference or account number. The payment is also identified by a payment reference | |
| The Customer information for payment will have the following headers: | |
| · Customer name |  |
| · Customer Phone no |  |
| · ARN |  |
| · Account no |  |
| · Disco |  |
| · Business Unit (BU) |  |
| · Undertaking |  |
| · Feeder |  |
| · Payment Status |  |
| · Payments reference |  |

|  |  | In a case where customer already made payment via other method of payment e.g. bank transfer, POS, etc., the customer also login to the system using the customer account number to confirm payment and view their current status. |
| --- | --- | --- |
| Backend | Payment  Notification and Review | The MSH App after successful integrations with various payment gateways will receive payment notifications for all customer payments. After payment has been made by the customer, the system reviews the payment and gives feedback to Survey and Installation App via an API that a customer has make payment and send a request that the customer be moved to the status “Awaiting Installation” on the Survey and Installation App. |
| Notify Survey and Installation  application Via API | At this point, the MSH application sent an API request to the Survey and Installation application to move the customer that has completed payment to awaiting Installation. |

|  |  | MSH application to keep log of API call status. To ensure that all API request and response are successful. |
| --- | --- | --- |
| Payment Report | Parameters being sent via the endpoint are: |
| · Customer Account No |
| · Payment Status |
| · Unique Reference Number |
| · Payment Information |
| At this stage, a payment and transaction report is generated. |
| View & Download Report | Payment report can be viewed and downloaded at the stage. |
| Payment Report can be reached and filtered by |
| . Customer name |
| • Customer Phone no |
| • ARN |
| • Account no |
| • Disco |
| • Business Unit (BU) |
| • Undertaking |

|  |  | . Payment reference | |
| --- | --- | --- | --- |
| . Payment Status | |
| Filter Payment Report | Transaction report can be filtered or sort by | |
| · Customer that has paid | |
| · Customers yet to pay | |
| · Time payment was made | |
| Weekly email notification for accounts that hasn’t made payment | A weekly email notification is being sent to customers as a reminder to make the payment required to get their meter. | |
| **MSH- Meter Service Hub - SERVICE ORDER (ANDRIOD & IOS)** | | | |
| User | **Action** | **Process** | **Description** |

| CUSTOMER | Install Application | Customers would be able to download the mobile application on Playstore and Apple Store. | |
| --- | --- | --- | --- |
| Customer signup and verification | User sign up with their email and password. Then the system verifies the email account and let the user proceed to log in and the use the application efficiently and effectively. | The system verifies the email account and send a mail to the user to verify the account. After successful  authentication and verification, the user is allow to use the system efficiently and effectively. |

|  | Customer Login | User can login on the application using the verified email and password set. So as to proceed to dashboard to  update his or her profile and make request. | Authentication and verification of account details |
| --- | --- | --- | --- |
| Profile Update and Customer  Dashboard | Customer’s details | User update his or her profile by inputting the following details: Name, Meter type, Disco, Card details, Account Number, Address, Phone number. |
| Service Request | Maintain rapid alert system to technician with customer requests | Customers would be able to select the service they are requesting for from the list of |

|  |  |  | services.  1. Wiring 2. Faulty meter 3. Separation 4. Electrical  Installation  5. Connection |
| --- | --- | --- | --- |
| Commitement fee | Commitment fee payment | The user makes request, directed to make a commitment fee and then he or she is paired with a technician. |
| Be Assigned to a Technician | Paired a technician to customer’s request | The system assigns a technician to the user after commitment fee is confirmed. Details and profile of the technician should be visible as well as scheduled date and time of technician visit. |

|  | Service cost estimation and payment | The service cost is displayed and the customer proceed to make payment after going through the charges. | The service cost is being estimated. |
| --- | --- | --- | --- |
| Upon acceptance, user is re-routed to payment gateway platform and after successful payment, user is brought back to the dashboard. | Payment for service rendered |
| Upon rejection, The customer is redirected to his/her dashboard |  |
| Completion of job and Customer Review / Rating | After repair is done, user can leave a review of engineer behaviour and performance. Then rate them according to stars and badge for performance. | Review and Performance rating |

| TECHNICIAN | Technician  Onboarding | Technician then proceeds to complete his/her onboarding by visiting the MOJEC ADMIN to complete KYC and activate account | Technician gets access to their account and functionality by carrying out the onboarding process both on the application and the MOJEC ADMIN. |
| --- | --- | --- | --- |
| Login and User Dashboard | Authentication and verification | Technicians login in the system using the login details sent to his email and after successful login, he proceeds to the dashboard. |
| Profile View & Update | Technician can see their current display and refresh as well as update. | Accepts commands and allow user to update |
| Tabs | Task/Service Request Dashboard & Workflow | The technician can view the pending, task in-progress and completed tasks. |

|  | Real-Time  Engineer Tracking | The system should enable customers to track the technician’s location, in case the technician is taking a longer or wrong route, the customer can call and direct them, making life easy for the customers as well as the technicians. | With the use of GIS technology,  technician’s mobile application would be tracked in real time. |
| --- | --- | --- | --- |
| Service cost estimation and payment | Technicain selects from alist of items required to carry out the service with their specification. | 1. Buss bar () 2. Cable (Length) 3. Damaged UIU 4. FAULTY METER etc. |
| Service/Transaction History | The system should enable customer see all service requested for. Also, the system should enable technician track their past earnings with the service history. | |

|  | Wallet (Claim payment, Earnings, Withdrawals) | Technicians can claim their wages based on a minimum specific number of work orders completed and will be re-routed to a payment gateway upon submission. |
| --- | --- | --- |
| Chat and VOIP Calling | The system should enable a call or chat option feature where customer or technician can reach out to a customer support. |
| ADMIN | On-boarding  Technician | Admin on-board the technician after they are been certified by MOJEC and proper background check and document review is done. |
| User management (Engineer, Admin, Other users) | · Add Users |
| · Edit Users |
| · Remove Users |
| Assign roles and permission |
| Assign / Reassign work order | Deserves right to assign work orders to engineers with positive reviews and ratings. |
| Approve engineer’s payments | Can approve engineer to be able to access the payment request button once that engineer has completed the minimum number or work orders successfully. |

|  | Review Customer feedback and ratings | Reserves the right to review user reviews and feedback on all Engineers and remove or sanction an Engineer if such an occasion should arise. |
| --- | --- | --- |
| Review Engineer’s survey report | Can review, edit and update the Engineer survey report as well as issue queries to Engineers with very low and negative ratings. |
| Review Engineer’s task report | Can review and update Engineer task reports. |
| Review Engineer’s performance report | Can review, update and generate Engineer performance report. |
| Activity trail | Has access to the trail from an associated user and Engineer. |
| Payment report | Can generate payment report for both Engineer and user. |
| **MSH- Order for Meter (IOS & ANDROID)** | | |
| User | **Action** | **Description** |
| Customer | Select Disco | Customers are presented a form on which they will select their respective Discos |
| Request KYC status | Customers are presented a select field from which they can select if they have carried out their KYC or not. |

|  | If customer has not carried out KYC, order KYC service | At a fixed cost, customers can request for their KYC process to be carried out on the platform. The fields requested are highlighted below. |
| --- | --- | --- |
| MOJEC carries out KYC on behalf of customer and give feedback on completion | After the KYC process is completed, MOJEC gives feedback via Email and SMS. |
| If customer has carried out KYC, customer supplies ARN/ACCOUNT  number to order for meter. | The customer account number and ARN is being search from the DB to verify the customer's Businmess unit |
| If the Customer's business unit falls under MOJEC's jurisdiction. Survey is carried out. | If the customer's Business Unit is under the MOJEC metering jurisdiction. An installer is being assigned to the customer to carry out survey to assertain the meter required by the customer. |
| If the Customer's business unit doesnt fall under MOJEC's jurisdiction. The customer is being advied on the next | If the Customer's business unit doesnt fall under MOJEC's jurisdiction. The customer is being advied on the next step to procure his/her meter |

|  | step to procure his/her meter |  | |
| --- | --- | --- | --- |
|  |  |  |
| **MSH- API Integration** | | | |
| **SURVEY & INSTALLATION APPLICATION** | | **MSH APPLICATION** | |
| Endpoint | Parameter | Endpoint | Parameter |
| **Survey**  **feedback/Request for Payment Reference** | Name  Email  Meter type Phone number Account number | Generate payment reference (Payment Gateway)  Autosend SMS & Email to customer |  |
| **A separation request can be sent to the MSH application via API.** |  |  |  |

| **Receive updated info & Change status to awaiting Installation** |  | Receive payment notification after payment and update S/I with payment status |  |
| --- | --- | --- | --- |
| **Survery feedback (Separation**  **needed)** | Name  Account number ARN  Phone number Email  Business unit Disco  etc (kyc fields) | Receive request to dispatch technician to site to get estimate |  |
| Account automatically created on MSH for customer. This account can only be avtivated by the customer. |  |
| Payment reference for the estimated amount required for the service generated for the transaction |  |
| Payment reference is sent to the customer via email and phone number |  |

|  |  | Customer makes payment with the generated payment refernce |  |
| --- | --- | --- | --- |
| Payment notification |  |
| Technician carries out the separation service. |  |
| Separation feedback sent to SURVEY & INSTALLATION APP via API. |  |
| Separation report document |  |
| **MSH- MOJEC VEND (ANDROID & IOS)** | | | |
| Process | | **Details** | |

| **Select Disco** | Customers are prompted to select their Disco or Estate to get access to Vend |
| --- | --- |
| **Enter meter number** | Customer are prompted to enter their meter number after which they are directed to the vending page to enter the quanmtity of energy they want to vend |
| **Payment for Token** | Customers are redirected to the payment gateway to make the paymentb for their energy using card or other payment channels. |
| **Token Generation** | Customers gets displayed the Token to vend and recharge their Electricuty meter |

• **Entity Details**

| **S/N** | **Entity** | **Attributes** |
| --- | --- | --- |

| 1. | Customer Registration / Sign up and Login | Email and Password |
| --- | --- | --- |
| 2. | MAP Customer Login | Customer Account Number |
| 3. | MAP Customer Payment Details | Customer Account Number, Unique Reference Number |
| 4. | Customer Profile | Name, Meter type, Disco, Card details, Account Number, Address, Phone number. |
| 5. | Technician On-boarding | Name, National ID, BVN, Passport photo, Address, Date of Birth, Certification (if any), Terms and Conditions |
| 6. | Customer Service Request | Customer name, customer address, date and timestamp, explanation of the issue, assigned technician, urgency classification, and resolution. |

• **Process-Oriented**

1. The system must allow technician to accept or reject a service request 2. The system must not allow technician see a new service request if engaged that is, if a technician is currently on a particular job and the request is not mark as complete, the technician should not see a new request.

3. The system should pair technician to a request using geographical area that is, if there is a request in Ikeja, only technician around that area or the closest location should see the request.

4. The system must synchronize offline payment with online payment each day

5. The system must make sure technician allow have access to their earning after the maturity period stated

6. The system should allow user to reset password if forgotten following necessary steps 7. The system should have access control features that ensures segregation of duties 8. The system must generate a unique reference number

9. The system should allow MAP customer make payment

10. The system should allow MAP customer have access to it

| MSH- Meter Order for MAP Customers | | | | | |
| --- | --- | --- | --- | --- | --- |
| User | **Action** | **Description** | | **Timeline (weeks)** | **Payme**  **nt**  **Plan** |
| PRE-ENGAGEMENT AND MOU SIGN-OFF | | **REQUIREM ENT**  **GATHERING** | **REQUIREM ENT**  **GATHERING** | **1** | **10%** |
| **WORKSHOP SESSION**  **WITH**  **MOJEC IT** | **WORKSHOP SESSION**  **WITH**  **MOJEC IT** |
| **MOU**  **AGREEMEN T SIGN-OFF** | **MOU**  **AGREEMEN T SIGN-OFF** |
| Project Conception and Initiation | | **Wireframe**  **Design** | **A page**  **schematic or screen**  **blueprint, is a visual guide**  **that**  **represents the skeletal**  **framework of a website.** | **2** | **20%** |

|  | | **Sandbox**  **Infrastructure setup** | **The sandbox Environment is setup and**  **pipeline for**  **deployement is configured** |  |  |
| --- | --- | --- | --- | --- | --- |
| **Design**  **Prototype** | **Design of a**  **scaled-down version of the product; a**  **simulation or sample**  **version which enables you to test the**  **designs** |
| Backend | Survey  Feedback  (Customer  Data) Upload | After survey  has been done, the survey and installation  App feeds the | Template | **2** | **15%** |

|  | {Template or  API} | MSH App the survey data  containing the customer  details which can be  uploaded via an API or a  template  manually  uploaded by an administrator (MOJEC). This data is stored on MSH  Database. | API |  |  |
| --- | --- | --- | --- | --- | --- |
| API | Payment  Gateway  Integration | Payment gateway Integration e.g. Interswitch, Paystack, Interswitch | |

|  | Payment  Reference  Number  Generation | After successful batch upload of customer data to the system, the System generates payment references for each customer information batched on the system. The payment references are generated with aid of  payment gateways (Remitta, interswitch etc.) integrated with the system. | |  |  |
| --- | --- | --- | --- | --- | --- |
| The following parameters are passed to the payment Gateway via API to generate the Payment refreence | |
| • Customer name | |
| • Customer Phone no | |
| • ARN | |
| • Account no | |
| • Disco | |
| • Business Unit (BU) | |
| • Undertaking | |
| • Feeder | |
|  |  |  |

|  | SMS &Email Notification of Payment  Advice | Customer is alerted and advised to make payment after successful generation of the unique  reference number for payment. The customer receives this notification via SMS and email. |  |  |
| --- | --- | --- | --- | --- |
| Customer | Payment  Landing Page | Enter the Payment reference issues via SMS and Email to make payment for the meter recommended. In the case of customers that didn’t get email  or SMS. Customers can proceed to retrieved their payment  reference by entering their account number. |
| And Customer is redirected to payment dashboard to make payment if he or she has not used other method of payment. |
| Proceeds to  make payment & Payment  Confirmation | Via web or mobile application, Customer proceeds to make payment by entering the unique reference number received via SMS or Email. The system automatically verifies the |

|  |  | number before accepting  payment, after verification, the customer is allowed to make payment after which the  payment is processed. | |  |  |
| --- | --- | --- | --- | --- | --- |
| Payment can also be made via web page using payment  reference or account number. The payment is also identified by a payment reference | |
| The Customer information for payment will have the following headers: | |
| · Customer name |  |
| · Customer Phone no |  |
| · ARN |  |
| · Account no |  |
| · Disco |  |
| · Business Unit (BU) |  |
| · Undertaki ng |  |

|  |  | · Feeder |  |  |  |
| --- | --- | --- | --- | --- | --- |
| · Payment Status |  |
| · Payments reference |  |
|  | In a case where customer already made payment via other method of payment e.g. bank transfer, POS, etc., the customer also login to the system using the customer account number to confirm payment and view their current status. | |
| Backend | Payment  Notification  and Review | The MSH App after successful integrations with various  payment gateways will receive payment notifications for all customer payments. After  payment has been made by the customer, the system reviews the payment and gives feedback to Survey and Installation App via an API that a customer has make payment and send a request that the customer be moved to the | | **2** |

|  |  | status “Awaiting Installation” on the Survey and Installation App. |  |  |
| --- | --- | --- | --- | --- |
| Notify Survey and Installation application Via API | At this point, the MSH  application sents an API request to the Survey and Installation application to move the customer that has completed payment to awaiting Installation. |
| MSH application to keep log of API call status. To ensure that all API request and response are successful. |
|  | Payment Report Parameters being sent via the endpoint are: |
| · Customer Account No |
| · Payment Status |

|  |  | · Unique Reference Number |  |  |
| --- | --- | --- | --- | --- |
| · Payment Information |
| At this stage, a payment and transaction report is generated. |
| View &  Download  Report | Payment report can be viewed and downloaded at the stage. |
| Payment Report can be reached and filtered by |
| . Customer name |
| • Customer Phone no |
| • ARN |
| • Account no |
| • Disco |
| • Business Unit (BU) |
| • Undertaking |
| . Payment reference |
| . Payment Status |
| Filter Payment Report | Transaction report can be filtered or sort by |
| · Customer that has paid |
| · Customers yet to pay |
| · Time payment was made |
| Weekly email notification for | A weekly email notification is being sent to customers as a |

|  | accounts that  hasn’t made  payment | reminder to make the payment required to get their meter. | |  |  |
| --- | --- | --- | --- | --- | --- |
| MSH- Meter Service Hub | | | | | **15%** |
| User | **Action** | **Process** | **Description** |  |
| CUSTOMER | Install  Application | Customers would be able to download the mobile application on Paystore and Apple Store. | |  |

|  | Customer  signup and  verification | User sign up  with their  email and  password.  Then the  system verifies the email  account and let the user  proceed to log in and the use the application efficiently and effectively. | The system  verifies the  email account and send a  mail to the user to verify the  account. After successful  authentication and  verification,  the user is  allow to use  the system  efficiently and effectively. |  |  |
| --- | --- | --- | --- | --- | --- |

|  | Customer  Login | User can login on the  application  using the  verified email and password set. So as to  proceed to  dashboard to update his or her profile and make request. | Authentication and  verification of account details |  |  |
| --- | --- | --- | --- | --- | --- |
| Profile Update and Customer Dashboard | Customer’s  details | User update his or her profile by inputting  the following details: Name, Meter type,  Disco, Card  details,  Account  Number,  Address,  Phone number. |

|  | Service Request | Maintain rapid alert system to technician with customer  requests | Customers  would be able to  select the  service they  are requesting for from the  list of services. 1. Wiring  2. Faulty meter 3. Separation  4. Electrical  Installation  5. Connection |  |  |
| --- | --- | --- | --- | --- | --- |
| Commitement fee | Commitment fee payment | The user  makes request, directed to  make a  commitment  fee and then he or she is paired with a  technician. |

|  | Be Assigned to a Technician | Paired a  technician to customer’s  request | The system  assigns a  technician to the user after commitment  fee is  confirmed.  Details and  profile of the technician  should be  visible as well as scheduled  date and time of technician visit. |  |  |
| --- | --- | --- | --- | --- | --- |
| Service cost  estimation and payment | The service  cost is  displayed and the customer proceed to  make payment after going  through the  charges. | The service  cost is being  estimated. |

|  |  | Upon  acceptance,  user is re  routed to  payment  gateway  platform and after successful payment, user is brought back to the  dashboard. | Payment for  service  rendered |  |  |
| --- | --- | --- | --- | --- | --- |
| Upon rejection, The customer is redirected to his/her  dashboard |  |
| Completion of job and  Customer  Review /  Rating | After repair is done, user can leave a review of engineer  behaviour and performance. Then rate them according to | Review and  Performance rating |

|  |  | stars and badge for  performance. |  |  |  |
| --- | --- | --- | --- | --- | --- |
| TECHNICIAN | Technician  Onboarding | Technician  then proceeds to complete  his/her  onboarding by visiting the  MOJEC  ADMIN to  complete KYC and activate  account | Technician  gets access to their account and  functionality  by carrying out the onboarding process both  on the  application and the MOJEC  ADMIN. |  |
| Login and  Techhnician  Dashboard | Authentication and  verification | Technicians  login in the  system using the login  details sent to his email and after successful login, he  proceeds to the dashboard. |

|  | Profile View & Update | Technician can see their  current display and refresh as well as update. | Accepts  commands and allow user to update |  |  |
| --- | --- | --- | --- | --- | --- |
| Tabs | Task/Service Request  Dashboard & Workflow | The technician can view the  pending, task in-progress and completed  tasks. |
| Real-Time  Engineer  Tracking | The system  should enable customers to  track the  technician’s  location, in  case the  technician is  taking a longer or wrong route, the customer can call and  direct them,  making life | With the use of GIS  technology,  technician’s  mobile  application  would be  tracked in real time. |

|  |  | easy for the  customers as well as the  technicians. |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Service cost  estimation and payment | Technicain  selects from  alist of items required to  carry out the  service with  their  specification. | 1. Buss bar ()  2. Cable  (Length)  3. Damaged  UIU  4. fAULTY  METER  etc. |
| Service/Transac tion History | The system should enable  customer see all service  requested for. Also, the system should enable technician track their past earnings with the service history. | |
| Wallet (Claim payment,  Earnings,  Withdrawals) | Technicians can claim their wages based on a minimum specific number of work orders completed and will be re-routed | |

|  |  | to a payment gateway upon submission. |  |  |
| --- | --- | --- | --- | --- |
| Chat and VOIP Calling | The system should enable a call or chat option feature where customer or technician can reach out to a customer support. |
| ADMIN | On-boarding  Technician | Admin on-board the technician after they are been certified by MOJEC and proper background check and document review is done. |  |
| User  management  (Engineer,  Admin, Other users) | · Add Users |
| · Edit Users |
| · Remove Users |
| Assign roles and permission |
| Assign /  Reassign work order | Deserves right to assign work orders to engineers with positive reviews and ratings. |

|  | Approve  engineer’s  payments | Can approve engineer to be able to access the payment request button once that engineer has completed the minimum number or work orders successfully. |  |  |
| --- | --- | --- | --- | --- |
| Review  Customer  feedback and  ratings | Reserves the right to review user reviews and feedback on all Engineers and remove or  sanction an Engineer if such an occasion should arise. |
| Review  Engineer’s  survey report | Can review, edit and update the Engineer survey report as well as issue queries to Engineers with very low and negative ratings. |
| Review  Engineer’s task report | Can review and update Engineer task reports. |
| Review  Engineer’s  performance  report | Can review, update and generate Engineer performance report. |
| Activity trail | Has access to the trail from an associated user and Engineer. |
| Payment report | Can generate payment report for both Engineer and user. |

| MSH- Meter Service Hub - SERVICE ORDER | | |  | **10%** |
| --- | --- | --- | --- | --- |
| User | **Action** | **Description** |  |
| Customer | Select Disco | Customers are presented a form on which they will select their respective Discos |  |
| Request KYC status | Customers are presented a select field from which they can select if they have carried out their KYC or not. |
| If customer has not carried out KYC, order  KYC service | At a fixed cost, customers can request for their KYC process to be carried out on the platform. The fields requested are  highlighted below. |
| MOJEC carries out KYC on  behalf of  customer and give feedback on completion | After the KYC process is  completed, MOJEC gives  feedback via Email and SMS. |

|  | If customer has carried out  KYC, customer supplies  ARN/ACCOU NT number to order for meter. | The customer account number and ARN is being search from the DB to verify the customer's Businmess unit |  |  |
| --- | --- | --- | --- | --- |
| If the  Customer's  business unit  falls under  MOJEC's  jurisdiction.  Survey is  carried out. | If the customer's Business Unit is under the MOJEC metering jurisdiction. An installer is being assigned to the customer to carry out survey to assertain the meter required by the customer. |
| If the  Customer's  business unit  doesnt fall  under MOJEC's jurisdiction.  The customer is being advied on the next step to | If the Customer's business unit doesnt fall under MOJEC's jurisdiction. The customer is being advied on the next step to procure his/her meter |

|  | procure his/her meter |  | |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |
| MSH- API Integration | | | |  |
| SURVEY & INSTALLATION APPLICATION | | **MSH APPLICATION** | |
| Endpoint | **Parameter** | **Endpoint** | **Parameter** |
| **Survey**  **feedback/Req uest for**  **Payment**  **Reference** | Name  Email  Meter type  Phone number Account  number | Generate  payment  reference  (Payment  Gateway)  Autosend SMS & Email to  customer |  |
| **A separation request can**  **be sent to the MSH** |  |  |  |

| **application**  **via API.** |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Receive**  **updated info & Change**  **status to**  **awaiting**  **Installation** |  | Receive  payment  notification  after payment and update S/I with payment status |  |
| **Survery**  **feedback**  **(Separation**  **needed)** | name  account  number  arn  phone number email  business unit  disco  etc (kyc fields) | Receive  request to  dispatch  technician to site to get  estimate |  |
| Account  automatically created on  MSH for  customer. This account can  only be |  |

|  |  | avtivated by  the customer. |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Payment  reference for the estimated amount  required for  the service  generated for the transaction |  |
| Payment  reference is  sent to the  customer via email and  phone number |  |
| Customer  makes  payment with the generated payment  refernce |  |

|  |  | Payment  notification |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Technician  carries out the separation  service. |  |
| Separation  feedback sent to SURVEY & INSTALLATI ON APP via  API. |  |
| Separation  report  document |  |
|  |  |  |  |
| MSH- MOJEC VEND | | | |  |

| Process | **Details** | |  |  |
| --- | --- | --- | --- | --- |
| **Select Disco** | Customers are prompted to select their Disco or Estate to get access to Vend | |  |
| **Enter meter number** | Customer are prompted to enter their meter number after which they are directed to the vending  page to enter the quanmtity of energy they want to vend | |
| **Payment for Token** | Customers are redirected to the payment gateway to make the paymentb for their energy using card or other payment channels. | |
| **Token Generation** | Customers gets displayed the Token to vend and recharge their Electricuty meter | |
| Project Launch and Execution | Provisioning of the Live  Infrastructure Environmant by MOJEC  Team | **The MOJEC team**  **provision the server**  **infrastructure and pipeline** |  |

|  |  | **for live**  **deployments.** |  |  |
| --- | --- | --- | --- | --- |
| Deployment on Live  Environment | **Deployment of the**  **approved**  **application to the server**  **provided after UAT test** |
| Final User  Acceptance  Test | **This is the**  **final UAT test after**  **deployment to the live**  **environment** |
| After launch support | **Go live Bug**  **Fixes** | **Fixing of bugs that comes up after**  **deployment**  **and**  **monitoring**  **the**  **application on the live**  **environment** | **12** | **30%** |

|  | **Code**  **Handover** | Handover of  the source  code to the  MOJEC team and a  knowledge  transfer session on deployment and changes  (version  controls) |  |  |
| --- | --- | --- | --- | --- |

**MSH DEVELOPMENT MILESTONE**

Non-functional requirements

a) Performance: The application has to offer a very quick response time as the meeting between the driver and passengers is done through notifications. In other words, the server should be able to treat notifications and propagate them instantly. The application should handle 1000 users sending queries at the same time.

b) Scalability The application should respond properly to a high increase of users. It should be able to handle from 10 000 users to 100 000 users. And also, from 100 000 to one millions users.

c) Extensibility The application should by extensible in order to support multiple platforms including iOS, Windows Phone and Web.

d) Availability Since a lot of information about the trips and check in are available in the application, it has to be highly available and guarantees a good server up-time. The server should allow only 1 hour down time per year which is 99.99% up-time. e) Privacy and Security The application should ensure the privacy of the users including addresses and the information exchanges between APIs. The login system should also be robust where only authorized users can post and edit their own information. f) Maintainability Since the application may be developed in the future by adding other features, it should be easily maintainable.