Customer relationship application and website

Statement of work

Glossary

Application	One or more mutually integrated software solution(s) designed to automate business processes, described below.
Charterer	An author of this project.
Company	An operator of the Application who will provide it to its Customers.
Contractor	A freelancer or agency who will perform this project.
Customer	End user of Application who will use it on production.
External service	Any third party system intended for functions that are disadvantageous to implement in the application, e.g., mail delivery subsystem with templates support.
CMDB	A configuration management database used to store information about hardware assets (equipment, apparatus).
CMS	A content management system used to manage the creation and modification of Company's website.
CRM (software)	Software system used to manage Company's customer relationship.

Background

The Company needs simple (no-code development) on-premises software Application for CRM, CMDB & CMS purposes for a single project. Additionally, the Company has a need to make requests through API.

The company management believes that Odoo is suitable for this project, but does not limit the choice. As well as any integrated third party software. Preference will be given to a project with a lower total cost of ownership.

The following section contains *Requirements* from the system *to be designed*.

Brief explanation of the need behind the project

The company makes its money by selling monitoring services to its **customers**. Each customer has at least one equipment unit to be monitored (**apparatus)**. Customer apparatus are located in a specific geographical location (city, district, etc) called **site**. For monitoring, the company mounts its specific equipment on sites: measurement tools, modems, etc (**assets**). The company's **IT staff** must track both (a) on which site what assets are located and (b) different asset and apparatus **settings** (e.g. IP addresses, serial numbers, etc). As

well as the relation of customer equipment to one of the sites. (*Draft entity relationship diagram* you can see in Appendix 1.)

There are two ways to become a customer. The first one implies that any **company website** visitor can register himself through the registration form. In this customer email or mobile number **verification** is required. The second one allows the **customer manager** to fill in all the necessary information and register a new customer account. In both cases, the customer must accept the **user agreement**, which is also a **public offer**, when he logs in for the first time.

Following the first way, any website visitor can view the point of his interest — **public monitoring dashboard**. Then he can **sign up** (or sign in) to access **dashboards with detailed information** as well as his **profile** page (thus he becomes a **non-paying customer**). Finally, he can go to his profile page, select **paid options** and **request an invoice** for payment. In this case, the customer manager should **receive a ticket with request**, validate user data (via phone or email by customer contacts) and send an invoice. (*Simplified use case diagram* is in Appendix 2 and *Draft activity diagram* is in Appendix 3.)

A single paid option gives the customer an ability to set up monitoring rules on a single apparatus. A monitoring service is a set of paid options. Default monthly cost of paid option (**common price**) is indicated in public offer. The customer can request a **separate agreement** with the **individual price**.

After the payment is confirmed IT staff should **receive a ticket** to tune monitoring equipment in accordance with activated options. This ticket must contain sufficient information about the changes so that the IT staff can uniquely identify which apparatus are affected by the changes. After monitoring equipment was tuned, (a) the requested options must be **activated** by the customer manager or by the IT staff and (b), the customer should **receive a notification**. It doesn't matter whether it is sent automatically or manually (by manager or IT staff), it should be sent from Application itself or through External service and saved as a sent message.

After paid options are activated, the customer can change them in his profile page. The customer can also selectively disable them. Each time the customer saves the changed options, the IT staff should receive a ticket to tune monitoring equipment. The option's lifecycle is *Disabled → Requested → Activated → Disabled*.

The Application (a) should provide all of described processes as well as (b) allow **scheduling** of next payments and (c) **deactivate** paid options if customer don't pay on time. Reactivation of these options after late payment can be either automatic or manual.

Both the separate agreement and the invoice must be generated from the template. The separate agreement should indicate customer data, specified in his profile and filled in here automatically, general terms and special conditions. The invoice should indicate the **cost** of

paid options and the total cost. Total cost should be calculated and (b) invoice should be generated and emailed automatically.

The customer must be able to choose a **payment method**: (a) to order a bill or (b) to pay with a card online. A letter with an attached **invoice** should be sent to the customer's email monthly.

Additionally, in order to automate equipment setup, the Application should allow assets information requests, including corresponding asset settings, site and customer relationship, etc., and send push notifications about changes to message queueing software.

Service cost calculation description

The cost of monitoring services is directly proportional to the number of monitored apparatus. The monthly cost of an individual option is calculated depending on the number of days during which it was active. No matter how long (or how short) it has been active.

Example. You can see 3 paid options lifecycles in Figure 1. Assume there are 30 days in this month. The customer should pay for 3 activated options in *Day 1* and *Day 2*, for 1 activated option in *Day 3*, *Day 4* and *Day 5*.

	Day 1			Day 2			Day 3			Day 4			Day 5		
Option 1	D	R	A	A	D	D	D	D	D	D	D	D	D	D	…
Option 2	D	R	A	A	D	R	R	R	R	R	A	A	A	A	…
Option 3	D	R	A	A	A	A	A	A	D	D	D	D	D	D	…

Figure 1. Paid options lifecycle example (D means *Disabled*, R means *Requested* and A means *Activated*).

Suppose that the common price is 300 KZT per option per month. In this case:

- the monthly cost for *Option 1* is <u>20 KZT</u> (300 divided by 30 days in a month and multiplied by 2 days of activity);
- for *Option 2* is <u>2900 KZT</u> (300 / 30 * 29, except *Day 3*); and
- for *Option 3* is <u>30 KZT</u> (300 / 30 * 3);
- total monthly service cost is <u>2950 KZT</u> (20 + 2900 + 30).

In the case of the separate agreement, only the common price (300 KZT) will change to individual price value (suppose 299 KZT) in the calculations, and the total monthly cost of the service will be 338.87 KZT (299 * (2 + 29 + 3) / 30 and rounded).

Website description

Company website consists of 3 pages:

1. Landing page with (a) public monitoring dashboard which is the generalized representation (summary) of the state of all monitored apparatus, (b) brief description paragraph, (c) sign up and login form and (d) the company contact info.

2. Page for authorized customers with detailed information dashboards.

3. Profile page with (a) customer data and (b) paid options management form.

Dashboards must be embedded from a third-party system as iframes.

(*Draft website mockup is in Appendix 4. An example of the implementation of the paid options management form can be found in Appendix 5.*)

Scope of Work

(The terms of this chapter are subject to discussion.)

(Different Contractors can carry out different types of work., e.g. website, asset management, task management, etc. Moreover, if the Charterer's employees can do parts of the work on their own, this can be protected as part of the training phase.)

1. **In Contractor lab**
   a. Setup the Application to satisfy all of the requirements (or just some key functions, by agreement).
   b. Perform a demonstration.
2. **On Charterer premises**
   a. Help to deploy the Application by Charterer employees (as a part of training).
   b. Help to integrate with External services (if required).
   c. Help to configure the Application to satisfy all of the requirements by Charterer employee (as a part of testing and training), including:
   (The exact number of entities required on this step is specified in the Limitations section.)
      i. create some sites;
      ii. create some equipment units;
      iii. create some Application users: custom manager, IT staff employee, customers;
   d. Help to set up a scheduled backup procedure by Chartered employees.
3. **Website**
   a. Landing page
      i. public monitoring dashboard;
      ii. brief description paragraph;
      iii. sign up and login form and;
      iv. company contact info.
   b. authorized customers page with detailed information dashboard.
   c. Profile page with
      i. customer data form;

ii. paid options management form.

4. **Testing**
   a. Check company website with public monitoring dashboard emulation.
   b. Perform customer self registration scenario; at the same time.
      i. check dashboards with detailed information emulation;
      ii. update customer profile (name, contacts, etc);
      iii. select paid options and request an invoice, test both payment methods.
   c. Manually register new customer with the customer manager role (*).
   d. Emulate paying customer behaviour:
      i. change paid options in his profile page.
   e. In both scenarios:
      i. check input data validation;
      ii. check tasks opening and closing;
      iii. check email notifications delivery;
   f. Select asset information through the API.
   g. Setup push notifications sending to any external MQ software;
   h. Check backup and restore procedure:
      i. find in the Application information that has changed since the last backup;
      ii. restore the application from the last backup; and
      iii. make sure that the information corresponds to the state of the Application before last backup.

5. **Documentation**
   a. Help to update existing documentation:
      i. use case diagram;
      ii. entity relationship diagram or class diagram;
      iii. activity diagram or collaboration diagram;
      iv. deployment diagram.

6. **Training**
   a. Explain how to deploy, configure, backup and restore the Application (*).
   b. Explain how to run update and rollback in case of update failure.
   c. Explain which of the Application modules or External services perform certain functions;
      i. point which of them are paid.
   d. Explain how to:
      i. add new or update existing customers (*);
      ii. add new or update existing sites (*);
      iii. add new or update existing assets and equipment (*);
      iv. update contract and invoice templates (*);
      v. update service costs (*);
      vi. manage notifications (*).
   e. Show how to select asset information through the API.

(*) Items marked with an asterisk can be performed in advance (on previous steps).

Limitations

Necessary and sufficient volumes of testing are listed below:
- 2 sites, attributes:
    - name (any unique string values);
- 2 apparatus on each site (4 total), attributes:
    - type ("signal source");
    - address (any string value);
      and measurements:
    - signal strength measurement enabled (true or false);
    - signal strength min threshold (10..20);
    - signal strength max threshold (100..200);
    - related site (site).
- 1 monitoring asset on each site, attributes:
    - type ("measurer")
    - serial number (any string);
    - IP address (ip address);
    - related site (site).
- each meter can measure no more than 30 signals;
- 1 customer manager account;
- 2 customers accounts, attributes:
    - first name,
    - second name,
    - mobile,
    - email.
- 1 IT staff employee account;
- lorem ipsum is suitable as the user agreement and brief description paragraph filler;
- billing currency is Kazakh tenge.

In the first year of production, we expect a total of:

- not more than 100 users (customers, managers and IT staff);
- not more than 300 assets (monitoring equipment and apparatus);
- not more than 10 website visitors per day.

We expect that our VPS with 2xVCP (E5607@2.27GHz) and 4GB RAM will be enough for this purpose. But we will be glad to hear Contractor recommendations.

Infrastructure and technology stack

On Charterer premises software containerized and deployed with Docker. It is required to use infrastructure as a code approach to manage designed system configuration. Docker

compose is the best choice in this case. It is acceptable to use docker bind mounts to store Application data.

Code exchange should be done through a version control system, Gitlab is preferable.

It is preferable to use Postman to store and share API requests examples.

Roadmap and pays

it is supposed to complete the project in 4 stages with partial payments:

Stage	Pay
In Contractor lab key features demo complete	20 to 40%
Passing tests on Charterer premises complete	80%
Documentation consultation complete	90%
Training complete	100%

The purpose of the "Contractor lab" stage is that the Charterer can verify the competencies of the Contractor, but at the same time do not have access to his infrastructure (code, configuration files, databases). At this stage, it is necessary to coordinate all the critical features for the Charterer, which the Contractor can complete at the least cost. The meaning of this stage is the same as that of the MVP.

The Contractor may not proceed to the next stages until he receives payment for the previous.

Communications & Support

During the implementation of the project it is necessary to hold several meetings.

1. At the Contractor lab stage to coordinate all the critical features which the Contractor will demonstrate.
2. At the Contractor lab stage upon the demonstration completion to decide on Contractor competencies and first payment size.
3. One or more meetings at the Charterer premises stage to coordinate and combine work performance and test execution.
4. Final Charterer premises stage to confirm passing tests and pay.
5. One or more meetings at the Documentation stage to update project diagrams and pay.
6. One or more meetings at the Training stage to complete training amd pay.

Meetings can be held via Skype or Google meeting or Zoom.

Since the project has scheduled tasks with a monthly interval, the Contractor must provide support after this interval, if something goes wrong with these tasks.

Deferred support with scheduled payments 1 month later.

Amendments or changes

Amendments or changes to this document

Date	Change description
May 30 2020	Initial release.
June 4 2020	Limitations, Production notes added. The option's lifecycle added. Services price calculation example added.