Zinier Platform Overview

Field Service Automation (FSA)

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1   Company Overview

Zinier is a Low-code Field Service Automation Platform, Powered by AI.

Field service leaders today live in a world of complexities -- managing in-house and outsourced workforces, complex service delivery processes, and a patchwork of legacy technology solutions.

Zinier does away with all of that, empowering field service teams to deliver an unparalleled experience for customers. Zinier is a cloud-based, end-to-end field service management platform for large organizations, helping them:

- Put the right work, in front of the right people, at the right time

- Ensure high-quality service delivery across their entire mobile workforce

- Easily create, deploy, and manage powerful, automated workflows

- Know how their entire workforce is performing, in-house or outsourced

We empower field service organizations to deliver always-on service now, while future-proofing for the long term. Our platform is AI-native, configurable, and accessible - enabling teams to work smarter and focus on uniquely human tasks.

Zinier is a privately-held company based in Silicon Valley, with strong financial backing from the same investors as groundbreaking companies such as Facebook and Spotify. Zinier also has offices in Singapore, Bengaluru, London, and Mexico City.

2 Key Differentiators

2.1 Why Zinier

Zinier helps field service operations teams use AI-driven automation to drive productivity, increase visibility into the field, fix things before they break, and deliver better customer experiences. Zinier is the partner to go to be the transformation partner and make your organization future-proof. Our solutions are built on top of a native and open platform to provide you with the advantage of flexible integration, cloud-ready, and scalable to meet the needs of your organization.
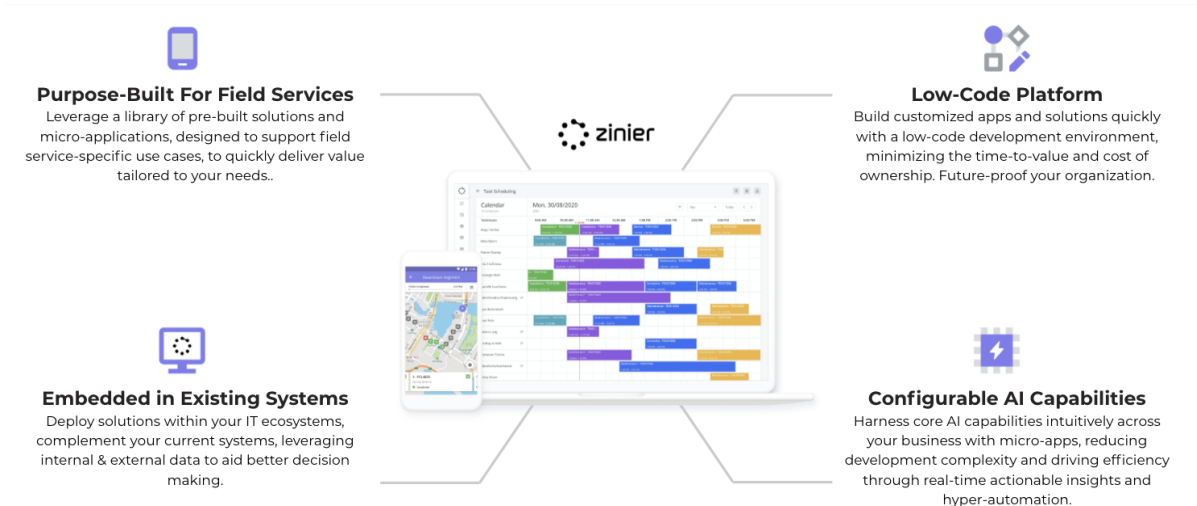
The diagram below provides an overview of Zinier's platform.
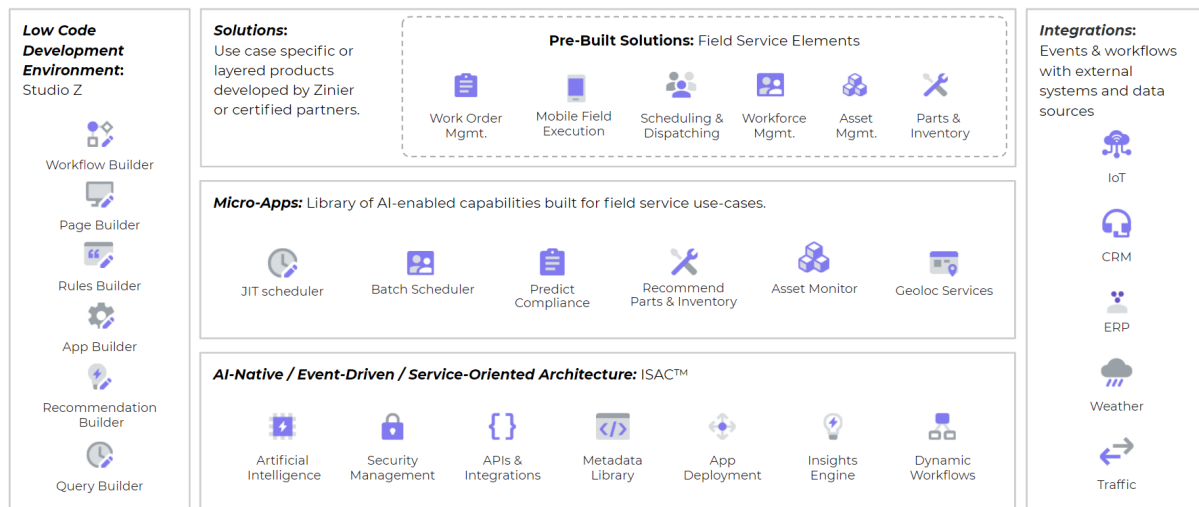
Zinier platform

At Zinier, we are dedicated bringing key value to our customers through:

- o **Industry's First Low-Code Platform for Field Services** Build customized apps and solutions quickly with a low-code development environment, minimizing the time-to-value and cost of ownership. Future-proof your organization.
- o **Purpose-Built For Field Services** Leverage a library of pre-built solutions and micro-applications, designed to support field service-specific use cases, to quickly deliver value tailored to your needs.
- o **Configurable AI Capabilities** Harness core AI capabilities intuitively across your business with micro-apps, reducing development complexity and driving efficiency through real-time actionable insights and hyper-automation.
- o **Embedded in Existing Systems** Deploy solutions within your IT ecosystems, complement your current systems, leveraging internal & external data to aid better decision making.

Purpose-Built For Field Services
Leverage a library of pre-built solutions and micro-applications, designed to support field service-specific use cases, to quickly deliver value tailored to your needs..

Low-Code Platform
Build customized apps and solutions quickly with a low-code development environment, minimizing the time-to-value and cost of ownership. Future-proof your organization.

Embedded in Existing Systems
Deploy solutions within your IT ecosystems, complement your current systems, leveraging internal & external data to aid better decision making.

Configurable AI Capabilities
Harness core AI capabilities intuitively across your business with micro-apps, reducing development complexity and driving efficiency through real-time actionable insights and hyper-automation.

2.2 Value Proposition and Benefits

Using Zinier field service automation platform, you will be able to transform its field service operations. Back-office and management teams will be enabled with field purpose-built capabilities to automate their daily work while the field force will be empowered with digitized mobile workflows as illustrated below
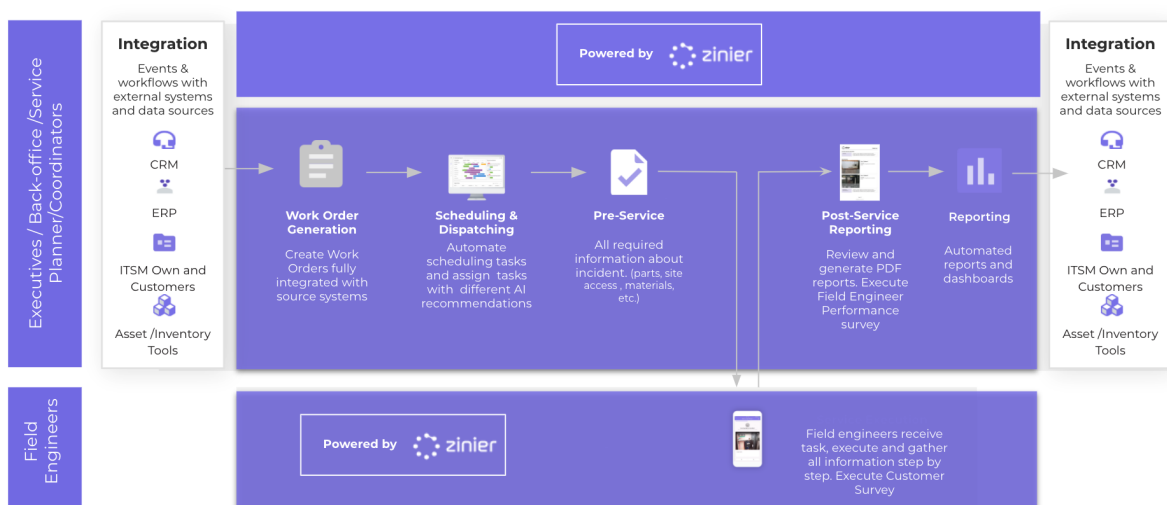
- **End-to-end Automation:** Workorders will be integrated from source systems, Automatic scheduling and re-scheduled with using AI/ML recommendations with variables considered such as distance optimization constraints, data captured digitally from the field engineers considering criteria such as SLA, skills, parts, tools and materials.

- **Complete more tasks and deliver higher-quality service:** Increase first-time fix rates by automatically assigning the right technician to each task, based on skills and proximity. Reduce SLA breaches by automatically re-assigning jobs when a technician is running behind. Deliver just-in-time service by tracking technicians and parts on-hand in real-time. Execute customer services by the field engineers at customer sites, as well as run performance surveys of field engineers by managers, service planners, coordinators, or anyone in the back-office.

- **Clear visibility in the field:** Monitor the overall performance of field teams and equipment, then drill down to each site and technician to complete the picture. Visualize the metrics you care about most with custom dashboards for every level of your organization.

- **Turn insights into action:** Drive operational efficiency by monitoring the performance of all field teams and assets, then automating best practices. Unlike legacy solutions that can take months to update, Zinier platform was built with speed and flexibility in mind. Using our workflow builder, you can change the workflow in minutes and push it to every technician's mobile device.

- **Empower your field teams:** Be as prescriptive as needed with detailed site records and step-by-step mobile workflow to guide technicians through each task. Easily verify job accuracy with annotated photo capturing and automatic approval workflows. Turn every technician into an expert with an on-demand Knowledge Library, even in areas with low to no network connectivity.

3 Zinier Solution Overview

The diagram below provides an overview of Zinier's platform.

The Zinier platform is organized in three layers of components that are described below:

- Intelligent Services Automation and Control Platform (ISAC)

- Field Service Elements

- Studio Z

3.1 ISAC Platform

ISAC is the central layer of the Zinier platform on which all the products and solutions of the system are built out of. ISAC uses information and recommendations based on artificial intelligence (AI) to optimize field operations. Whether you need to automatically and intelligently choose the most suitable technicians for a given task, monitor a network of IoT devices, or generate historical trends and real-time data, the ISAC intelligence layer allows field service organizations to do more with less.

ISAC analyses the past and present data of the organization through AI algorithms to help solve the most pressing problems before they occur. It follows the OARP logic: Observe, Analyze, Predict and Recommend.
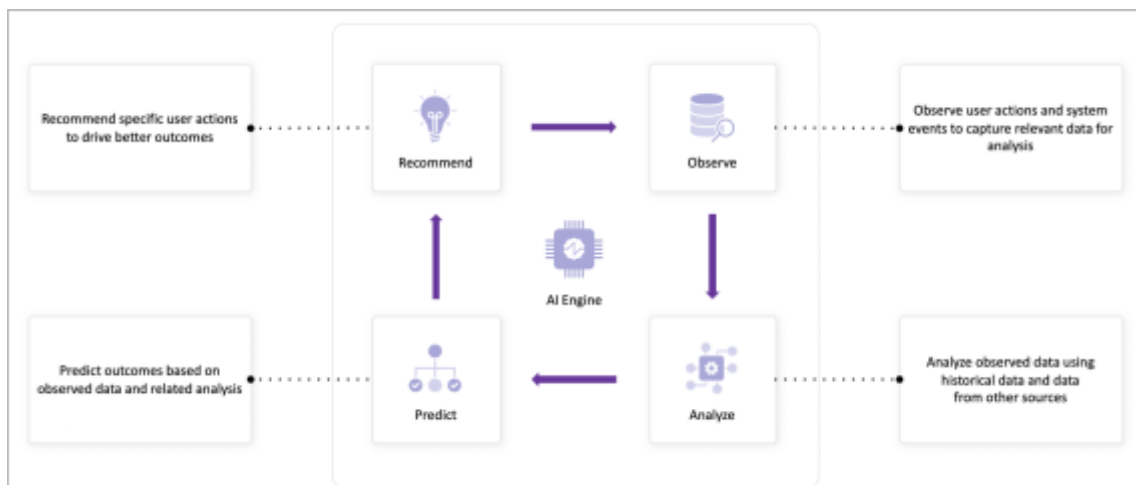
OARP Logic

3.2 Automation First

Zinier's intelligent scheduling and dispatching automatically assigns, schedules, and dispatches tasks to the best available technician based on factors such as proximity, skills, and availability. In addition, you can define the criteria used by the scheduling logic.

Task Automation

Automate routine & complex processes so your staff can spend their time managing exceptions and top priority use cases

Operational Efficiency

Connect the back office to the field and optimize workflows to dispatch, execute, and close-out more tasks each day

Actionable Insights

Convert field data from all sources into proactive recommendations for the visibility required to act with agility

3.3 Automation in Field Service Value Chain

Zinier is the platform that catapults customers into automation. You can get a vast list of benefits such as:

- Proper exception management

- Reduce manual steps

- Lowering your operating costs

- Improve FTR (First Time Fix Rate)

- Improve MTTR (Mean Time To Resolution)

- Reduce Truck Rolls

At the same time, it will allow you to collect business information. Allowing your field operations organization to fully digitize its operations, creating massive amounts of data. Hence, Integrated AI / ML capabilities will help you generate actionable insights and make quick business decisions. The list of main capabilities that can be achieved are the following:

- Organize and Prioritise Ticket Requests; Integrate existing ticketing systems and legacy systems to automatically create work orders with specific tasks and parts enforcing the SLA based on ticket priority to ensure agreed customer SLAs are achieved.

- Give real-time updates to stakeholders throughout the entire ticket life cycle; Send notifications using Zinier or trigger feedback in existing technology stack-

- Create work orders and tasks based on templates; Configure Work Order templates with specific types of tasks and parts needed for the job to speed up (manual) Work Order creation and reduce back-office workload.

- Use IoT data and prediction to generate WOs for maintenance and replacement of parts; Integrate with connected assets, suggest parts needed for maintenance to reduce your truck rolls/increase first-time fix rate (not included in the OTPS)

- Find the best timing, based on travel time, priority; Start with automatic schedule optimization and in time add custom attributes that can help you create a more efficient schedule.
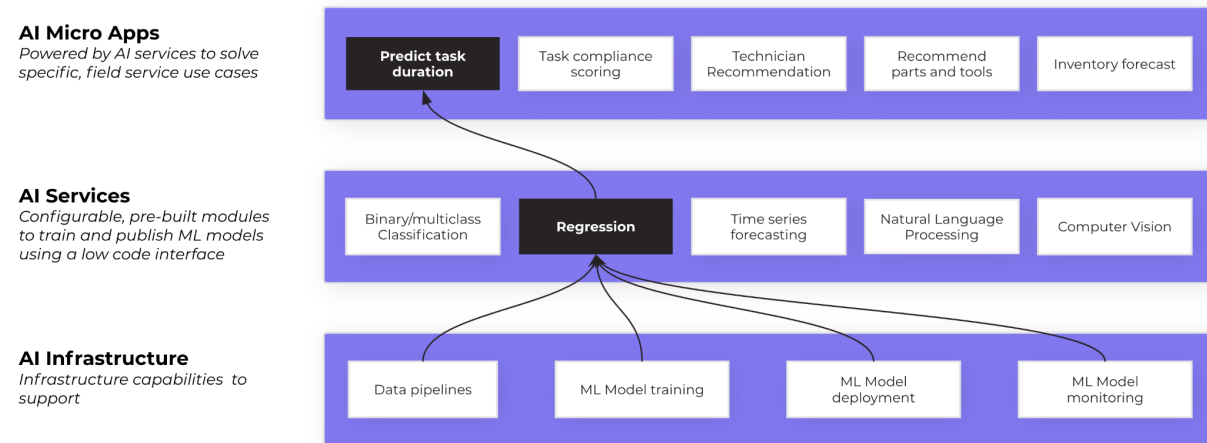
● Give Real-time view to all stakeholders

Back-office and management teams will be enabled with web workflows while field teams will be empowered with dynamic, intuitive, and guided mobile workflows with end-to-end work order transactions as envisioned to be executed below.

ORDER MANAGEMENT		SCHEDULING		EXECUTION		REPORTING	
Ticketing Management	**Work Order Generation**	**Scheduling**	**Dispatching**	**Task Execution**	**Review & Approval**	**Reporting**	**Billing**
Automation	**Automation**	**Automation**	**Automation**	**Automation**	**Automation**	**Automation**	**Automation**
Organise and Prioritise Ticket Requests	Create work orders and tasks based on templates	Find the best timing, based on travel time, priority	Optimise and reschedule tasks	Give Real time view to all stakeholders	Highlight submission issues: - Missing info - Poor images	Give smart recommendations	Generate close out packages, sign-off bundles
Give real time updates to stakeholders throughout the entire ticket life cycle	Use IOT data and prediction to generate WOs for maintenance and replacement of parts	Match technicians to tasks based on experience score, skills etc.	based on: Unexpected Events Weather condition Predicted Delays	Auto-fill repeating information	Auto Approve/Reject	Give real time view of daily operations	Generate and track invoices
				Give feedback on poor quality images	Recommend best action upon rejection	Give smart analysis of KPIs	Update contracts and customer information

3.4   Tools to Democratize AI

Zinier provides the tools and infrastructure needed to deploy custom AI models and use cases in a no-code environment. Our goal is to democratize AI, making it available for any field service solution without needing to hire expensive data scientists. An overview of the architecture and approach is outlined below.

AI Micro Apps
Powered by AI services to solve specific, field service use cases

| Predict task duration | Task compliance scoring | Technician Recommendation | Recommend parts and tools | Inventory forecast |

AI Services
Configurable, pre-built modules to train and publish ML models using a low code interface

| Binary/multiclass Classification | Regression | Time series forecasting | Natural Language Processing | Computer Vision |

AI Infrastructure
Infrastructure capabilities to support

| Data pipelines | ML Model training | ML Model deployment | ML Model monitoring |

3.5   AI-Driven and Rule-based automation

Zinier provides operation of AI/ML and Rule-based Automation details and examples, which are provided below.

AI-Driven

AI can analyze lots of data, find patterns and make predictions. It can learn from good and bad outcomes and optimize itself.

It needs a lot of data and it's harder to maintain.

AI gives you the ability to be proactive and preventive.

> **For example**: based on data, AI predicts an asset may breakdown soon, you can already schedule and dispatch a maintenance task for it.

Rule-based Automation

Rule-Based Automation (RBA), helps to reduce the need for manual work. It can be run as a scheduled routine or by reacting to events.
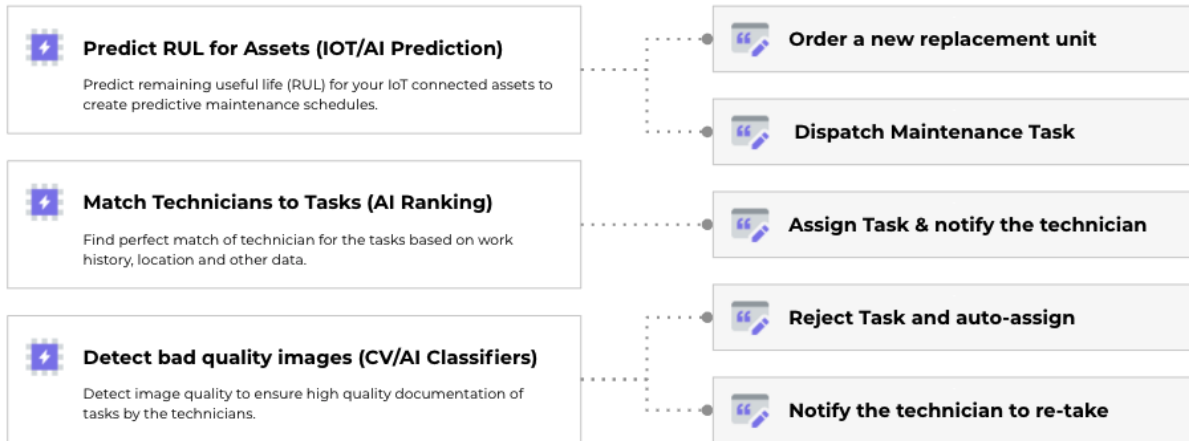
It's simple to maintain and doesn't need to consider historical data.

RBA gives your staff the space to focus on more important actions.

> **For example**: check every day for minimum inventory stock numbers and automatically order more.

3.6 AI-Driven automation

The Zinier platform allows you to embed different AI nodes (leveraging our AI Micro Apps), within any Zinier workflow. Utilizing our events-driven architecture, you can configure AI automation to run based on any predefined event or business logic.
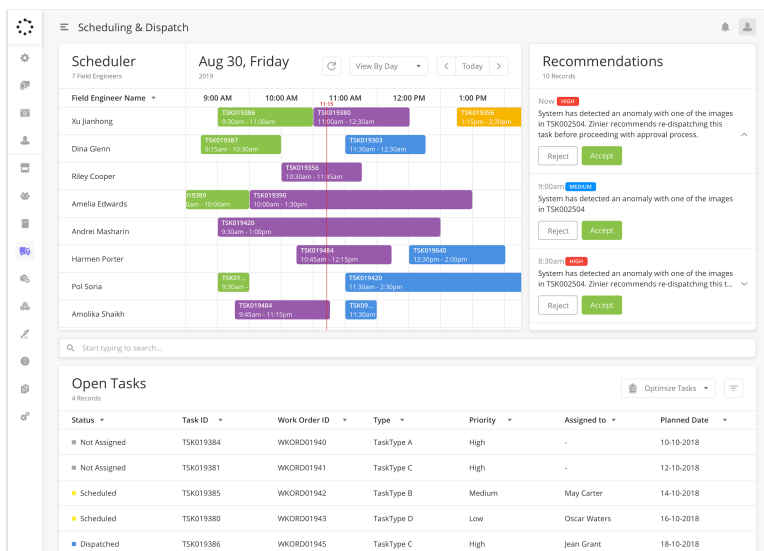

Predict RUL for Assets (IOT/AI Prediction)
Predict remaining useful life (RUL) for your IoT connected assets to create predictive maintenance schedules.

Match Technicians to Tasks (AI Ranking)
Find perfect match of technician for the tasks based on work history, location and other data.

Detect bad quality images (CV/AI Classifiers)
Detect image quality to ensure high quality documentation of tasks by the technicians.

Order a new replacement unit

Dispatch Maintenance Task

Assign Task & notify the technician

Reject Task and auto-assign

Notify the technician to re-take

3.7   Field Service Elements

Field Service Elements are a set of modules specially designed for the field services industry. They use Studio Z with ISAC as the central layer and contain all the functionalities necessary to operate a field services organization.

- Work Order Management

- Scheduling & Dispatching

- Workforce Management

- Mobile Field Service

- Asset Management

- Parts & Inventory

- Customer & Contract management

- Real-time Dashboards

- Recommendation Centre

These Field Service Elements serve as a starting point to create customized solutions that meet the specific needs of any organization.

Please refer to the **FSE Core Capabilities document** for more detailed information on Field Service Elements.

3.8 Studio Z

Studio Z allows you to configure workflows for web and mobile users using the graphical user interface (GUI) without the need for extensive software coding and consists of the following components.

- Development & Deployment

- Events & Workflows

- Building Web Apps

- Building Mobile Apps

Development & Deployment

Studio Z has a suite of software development and deployment tools that allows users to efficiently collaborate on a project.

Model Builder

Data models are the backbone of any web or mobile application. They represent a single table of data and are composed of one or more fields that represent a column in the table. When "modeling" a new solution or web app, the Models and associated fields first need to be created and organized before you can capture or display any data in your Web or Mobile Application.
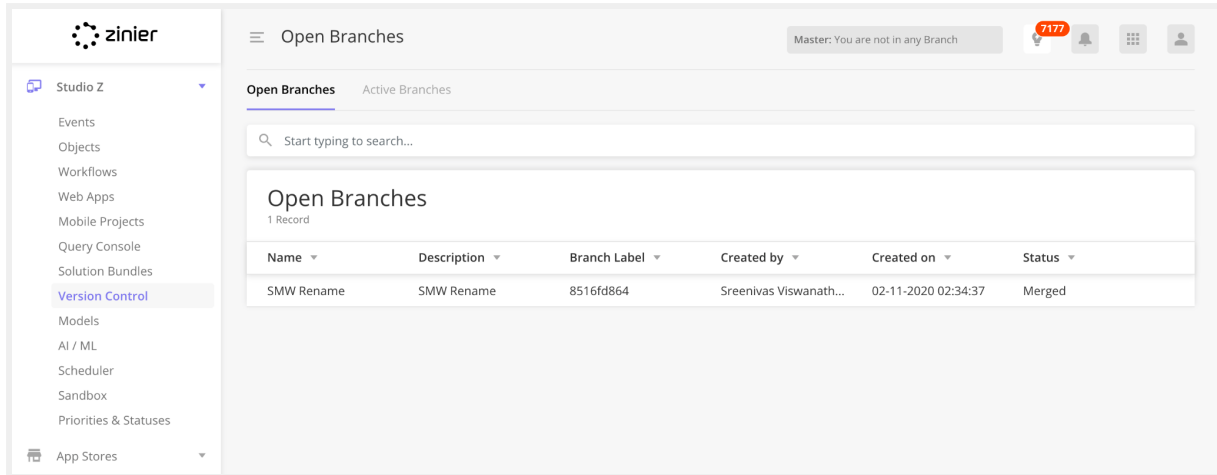
The model builder allows you to access and create a model structure to support the Solution you are building. Models.
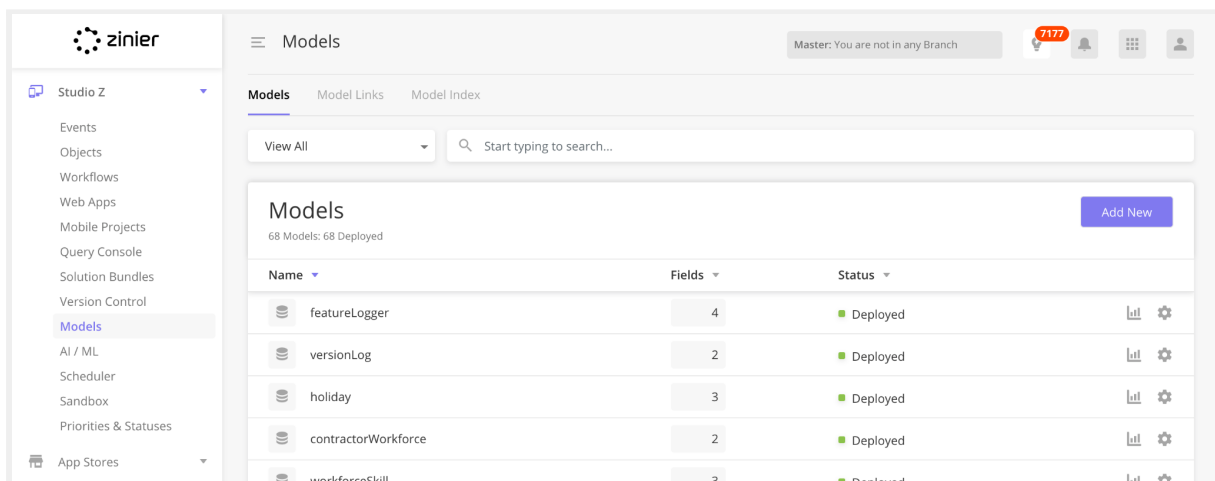
Version Control, Branching and Conflict Management

Version Control and branching enable users such as Solution Admins and developers to

work in a controlled environment during solution development. With this feature, users can manage, track, and control changes to solution objects like workflows, pages, queries, and, rules. The Conflict Manager provides developers with a console where they can see and resolve conflicts when merging branches.
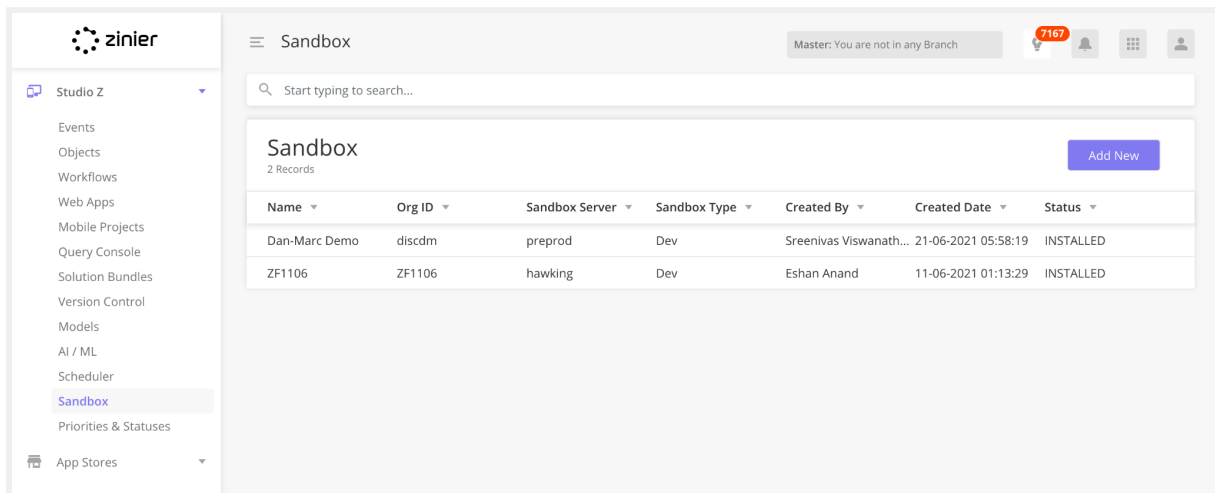
Sandboxes

The Sandbox functionality allows Solution Admins to create a sandbox org from a production org. Sandbox APIs clone an existing organization on a production server to the sandbox server. With Sandbox, you can ensure development and testing are done in a separate org and not in production. This reduces any risk of instability in Production Orgs as development is done in a different, controlled environment.
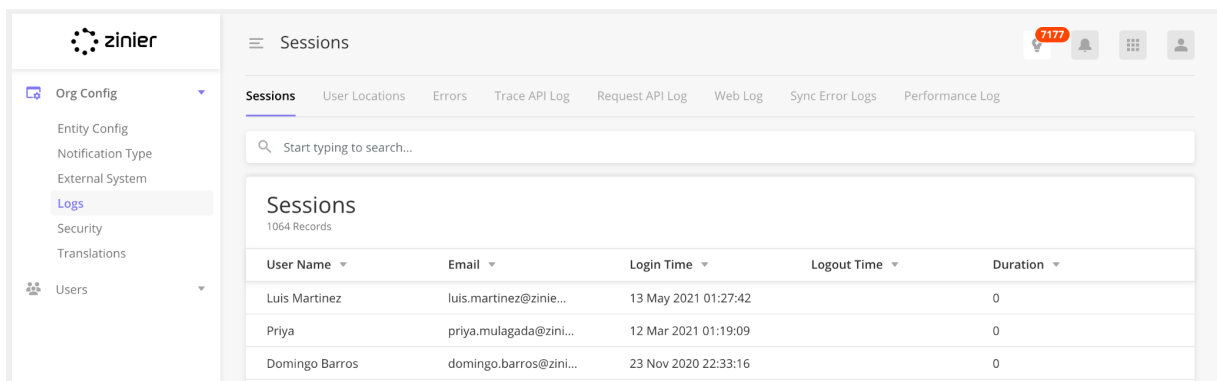

Solution Bundles

A solution bundle consists of all Solution Objects that are needed for a complete solution. Solutions Admin can configure a bundle, and install it into another organization. Solution Bundling saves on implementation time as it enables solutions admin to quickly build, bundle, and install new org solutions. It also reduces manual work of upgrading the organization as all parts of a solution bundle can be upgraded at the same time. After installing the solution bundle into an organization, the solutions admin can continue to add or edit web projects, mobile projects, or solution objects within the organization according to its growing needs.

Workflow simulator and JSON Editor

Use the query console Write database queries and preview the results of the query in a table. Use the workflow simulator to test and simulate workflows before deploying them. View and edit Web Pages in a custom JSON console that organizes the page structure in a fast and easy to edit layout.

Logs

Zinier has a number of logs that facilitate developers and in finding and triaging technical issues.
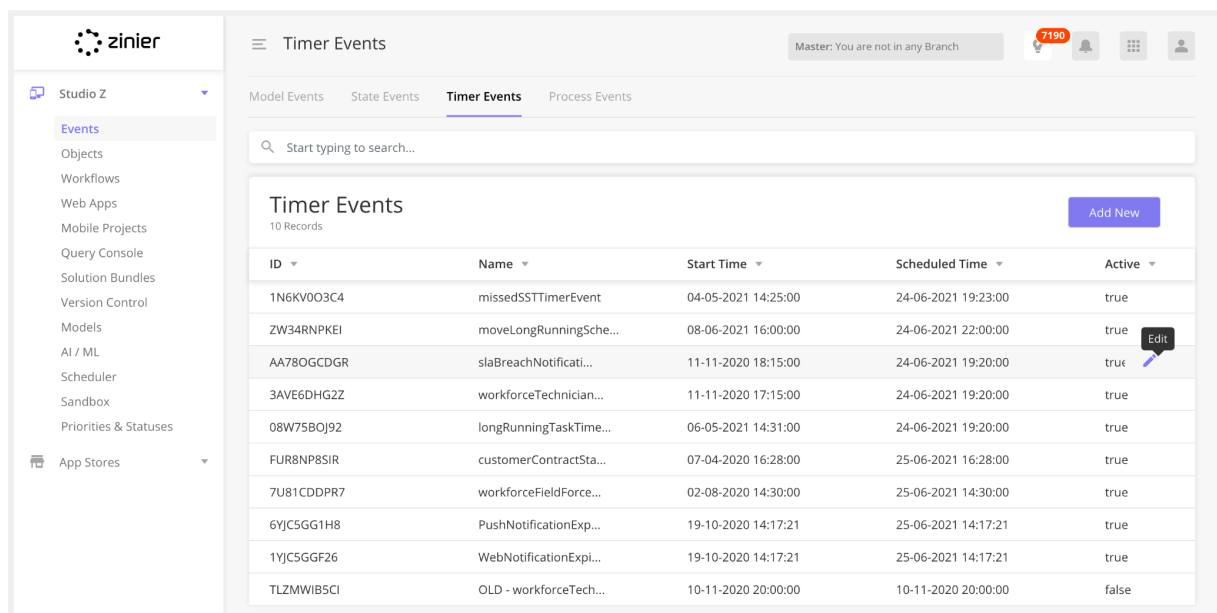
Events & Workflows

Events

Event is an action that happens as a result of user actions such as click a mouse button or pressing a key or system occurrences such as running out of memory

In Zinier, events are configured to look out for changes in models, fields, or specified timings to trigger one or more workflows. These events can be based on users' actions or input such as clicking a specific button, picking an option from a list, entering text into a field, or system-generated events such as a program loading. Events enable Touchless Automation for Zinier clients as they allow for workflows to work seamlessly without manual triggers built into workflows themselves.

For example, a Solution Admin can create a trigger to check for Auto Approvals of Work Orders at a frequency of every hour and trigger the Update Auto Approval Status workflow.

The following events can be used in Zinier:

- **Model Events** - Model Events trigger a workflow when there is a change to a specific model. A solutions admin must create a model event workflow(s) to trigger before creating the corresponding model event.

- **State Events** - State Events trigger a workflow when there is a change to a specific field in a model. A solution Admin must create the state event workflow to trigger before creating the corresponding State Event.

- **Timer Events** - Timer Events trigger a Stateless Workflow at a specific time and frequency. Solutions Admins should create the Stateless Workflow(s) to trigger before creating the corresponding Timer Event.

- **Process Events** - Process Events are events that can trigger multiple workflows in sequential order. For example, Process Events might be used in the following scenario: when executing a workflow to update inventory once a work order is completed, a process event can be created to trigger a sequential workflow to deduct the inventory items at the same time.

Workflows

Workflows are fundamental building blocks when making a customized Zinier Solution for a client. Constructed using Nodes and written in JSON, they contain the inherent logic and steps that determine how Zinier's applications function.

Workflow Builder

The Workflow Builder helps Solution Admins to build and simulate any workflow in a drag and drop GUI interface. Once a workflow is created, you can test and simulate workflows before deploying them to ensure there are no errors in the Workflow Simulator.
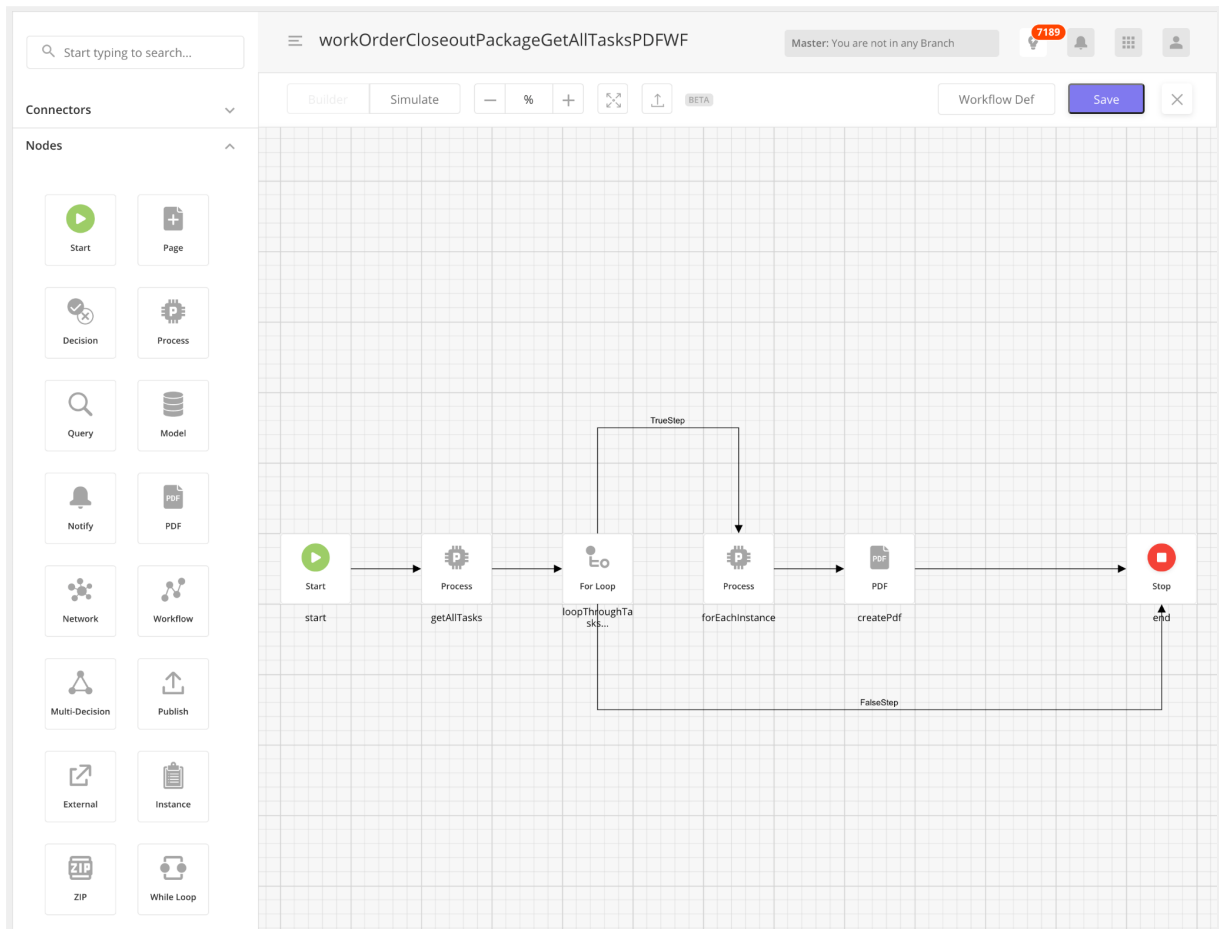
Workflow Types

- **Stateless Workflows** - A typical workflow that is not tagged to any particular mobile project. A stateless workflow cannot be paused for user inputs or events. With the exception of Mobile Workflows, all other types of workflows are stateless workflows.

- **State Event Workflows** - State Event Workflows are workflows linked to a field of a model. They are triggered by State Events. State Events can be configured in the Events Module within Solution Builder and are linked to a change in a field's value in a model.

- **Model Event Workflows** - Model Events Workflows are linked with models. They are triggered by Model Events configured in the Events module within Solution Builder and are linked to changes to a model.

- **Procedure Workflows** - A stateless workflow that can be used for processing APIs.

Workflow Nodes

The building blocks of workflows, nodes represent the different steps in a workflow and contain the inherent logic that determine how workflows function.

There are 24 different nodes such as; Start Node, PDF Node, Zip Node, Model Node, Process Node Etc.
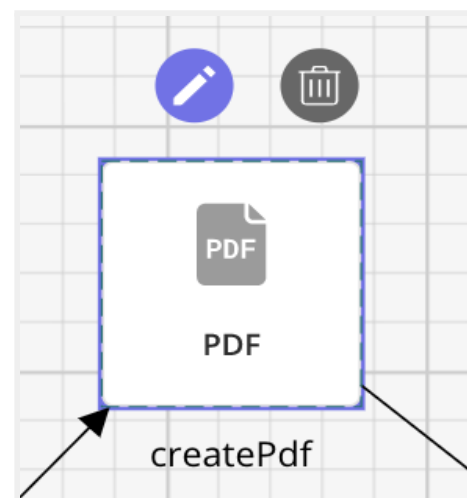
Workflow Objects

Objects are independent entities that lie outside web or mobile projects which are required for a Zinier solution to function properly. Each Object has an ObjectID that can be exported into a Solution Bundle.

Rules - Rules are javascript functions that can transform data used in the solution
Queries - Queries are written in JSON format, used by Mobile/ Front End to fetch records from Database.

Network API - These are APIs used within a Network Node to contact external servers.

Templates - Templates are used for text (notifications, PDF) generated within the solution.

ZNode - ZNode is used to connect with External systems such as Zendesk or Hubspot to fetch or update information.

Building Web Apps

Web Applications are the first level of navigation a web user will see in the Zinier web platform. As part of the solution builder, this module allows a solutions admin to create, edit 'Applications' on the Zinier platform. Web Applications are made up of modules and pages. Solutions Admin can also assign user groups to each Application.

Web app settings:

Define Navigation and Order - Define 3 levels of navigations: Web Apps, 2nd Level Modules, and Page-level modules.

Custom Branding and Icons - Define custom colors, company logo, web app icons.

Define User Access - Choose which user groups have access to web apps and modules.

Main Page / Dashboard Builder

Drag-and-drop interface to create main page layouts which can consist of any number of Web Widgets. Can be used to create main pages or dashboards.
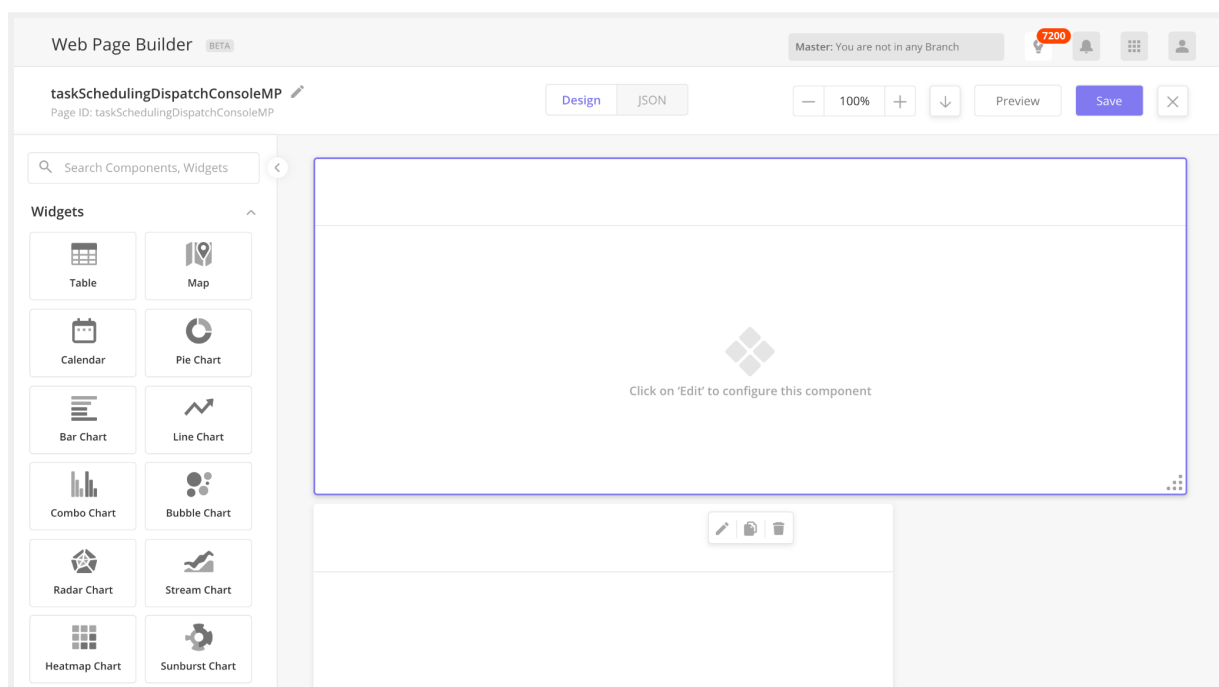
Side Panel Builder

Drag-and-drop interface to create side panel pages that can consist of any number of Web Components (See below). Side panels are pages that come up on top of the main page. They are how a user does data input via forms in Zinier Web Apps. For example, a user can click on an Add or Edit row action from a data grid in the main page to open up

a side panel to edit a row or add a new row to the data grid.
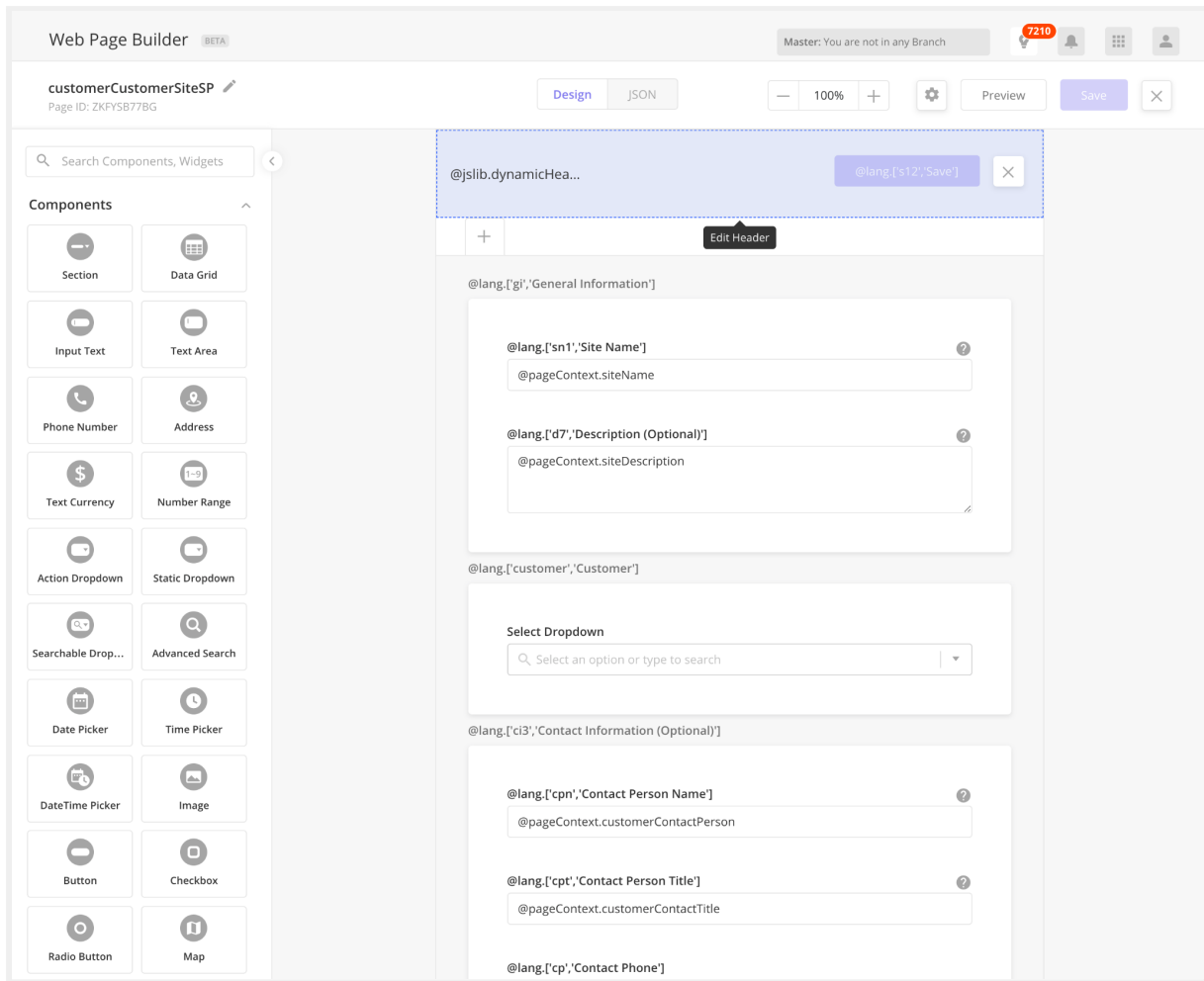
Page Editor / JSON Console

Alternatively, you can also use the Page Editor / JSON Console to View and edit Web Pages and Side panels in a custom JSON console that organizes the page structure in a fast and easy to edit layout.
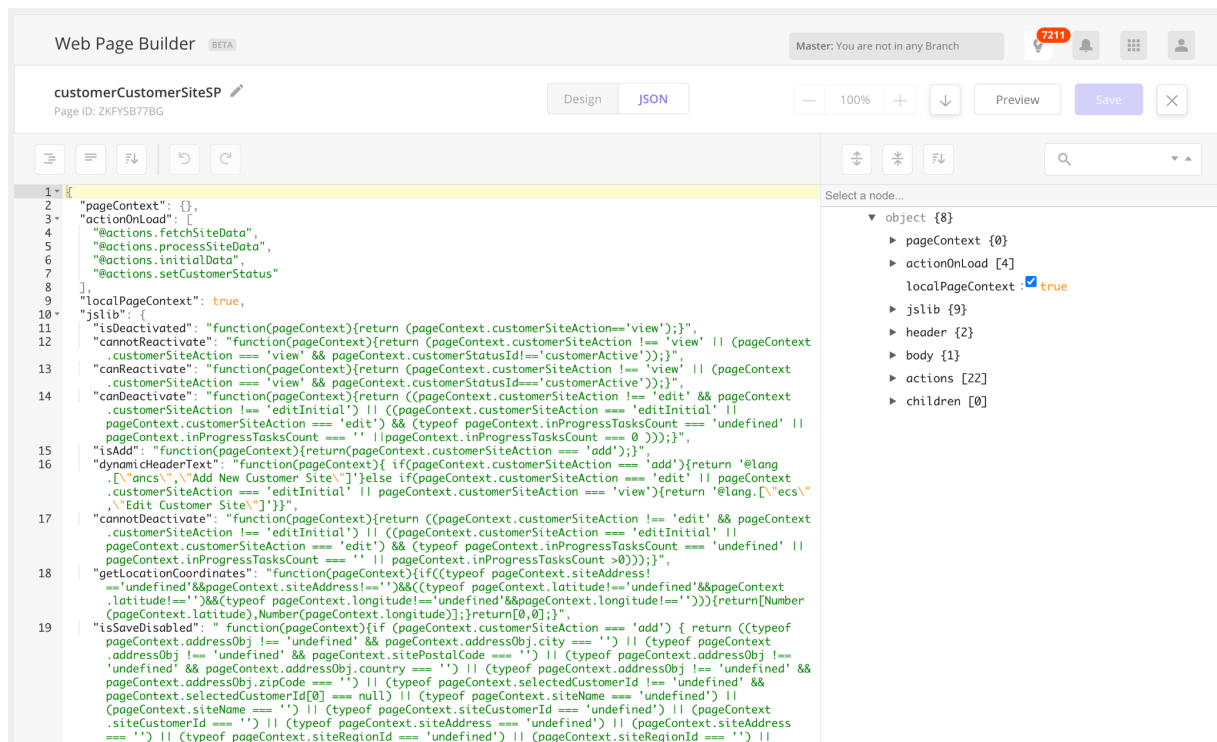

Other Main Page & Sipanel Features

Side Panel Tabs - Sidepanel tabs extend the configurability of side panels to allow for information to be stored in different, configurable tabs across the side panel. Gives Solution Admins an additional way to segregate data.

Data Validation in Side Panels - Sophisticated data validation and show/hide logic for components in side panels.

Web Actions - Configure on pages to trigger events/workflows/APIs and other actions (i.e. close a side panel). Actions are triggered during certain events such as on a load of a page, on the click of a button, or on a selection of some records. The actions in an action array are executed in a synchronous manner.

Overlays - Define overlay layouts that can consist of any number of Web Components. The overlay component allows users to visualize information in a popup window without navigating to a side panel.

Web Widgets

Web Widgets are visualizations configured for a web user to see on the Zinier web platform. They can appear on the main page (MCL2, Dashboard) or side panel. All Web Widgets can be populated with a query or a workflow.
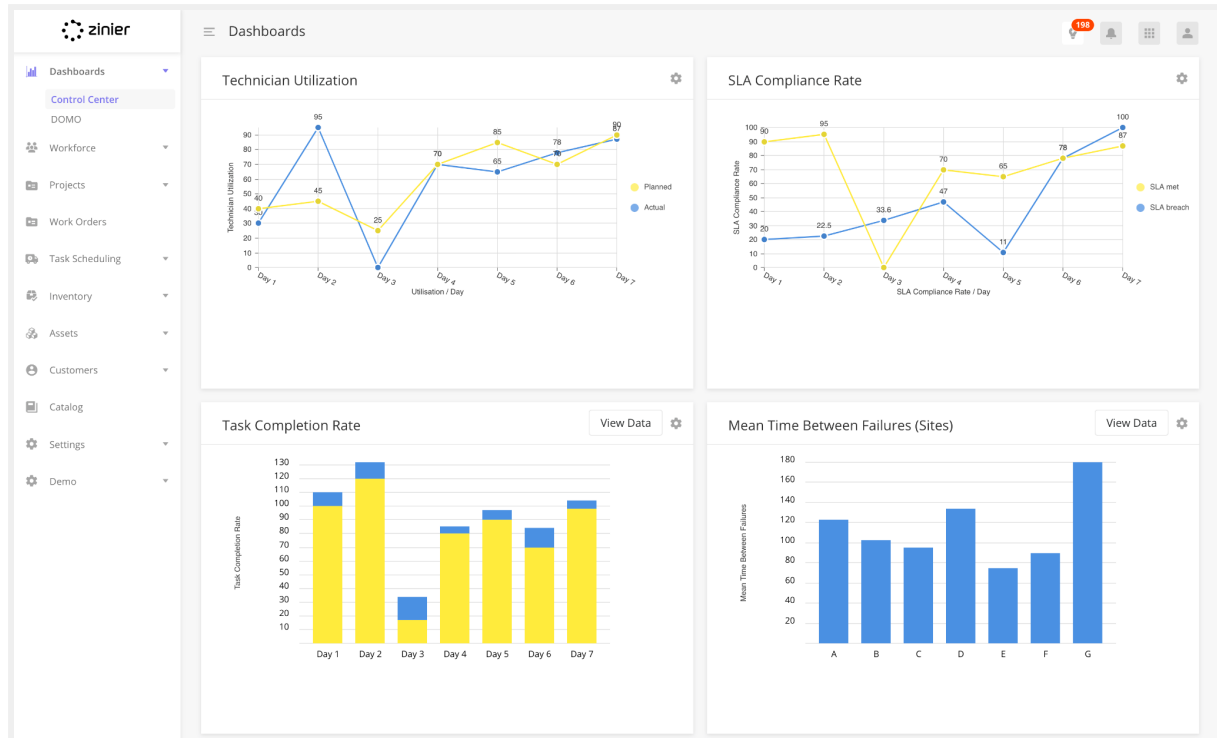
Widget Builder / Visualizer - Widget Visualiser allows Solution Admin to preview and edit existing Web Widgets on a Dashboard page easily.

Dynamic Filters - Dynamic Filters are filters that can be applied to web widgets and data grids. Users can add multiple dynamic filters to a web widget or component. When multiple filters are added, the operator applied is AND. OR operators are not supported with Dynamic Filters. End users are able to select the column and values they want to filter, save or delete filters. Dynamic Filters are saved to a session of a user and will persist as long as the user does not log out of the web application.

Navigation Dropdown in Widgets - Users can be redirected to a different web app or web module from a web widget. Solution Admin can configure a Navigation dropdown in the header of a widget that contains redirection links to other web apps.

Event-Based Widget Interaction - Widgets on main pages can listen and interact with each other via events.

Widget Types

You can use the following widgets while creating pages.

Widget	Description
Data Grid	Displays Data in a tabular form.
Calendar Widget	Displays data in a calendar
Map Widget	Visualize data in a geographical map
Line Chart	Line chart supports multi-series data.
Bar Chart	Bar Chart that supports multi-series bar charts as well as horizontal and vertical bar chart configuration.
Pie Chart	Display data in % form in a circle.
Bubble Chart	Bubble Chart is a variation of a Scatter Chart that allows you to visualize data in 3 dimensions.
Radar Chart	Radar allows a user to compare multi-series data in multiple dimensions.
Stream Chart	Stream chart displays a stacked area graph for multi-series data over a period of time.
Heat Map Chart	Heat map matrix displays data in the graded color density.
Sunburst Chart	A Sunburst displays hierarchical data, where a level in the hierarchy is represented by a circle.
Scatter Plot Chart	A scatter plot is a type of plot using Cartesian coordinates to display values for typically two variables for a set of data.
Pareto Chart	A Pareto chart is a type of chart that contains both bars and a line graph, where individual values are represented in descending order by bars, and the cumulative total is represented by the line.

Web Components

Web components are the building blocks of any page definition where they are used to help users to enter, edit, or view data. These components are built to be highly flexible to meet the diverse business requirements of all Zinier's users.

Component	Description
Address Component	Address Component is used inside panels to input Addresses. It prompts users with suggestions of location names (like Google Maps). On selection of location, the platform saves location-related metadata such as lat/long, city, state within the

	Page Context variable for Solution Admins to use.
Alert Component	Alert Component shows a user a message in a banner if certain conditions (via jslib) are met. The Alert Component will be shown on top of the side panel and can be closed by the user or automatically closed when timed out. Alert components can be used inside the panel and main pages. There are 3 types of alert components. Different types can have a different color: success - green color danger - red color warning - yellow color
Button, Icon Button and Dropdown Button	Buttons are components that can be clicked by the user to trigger actions. There are several types of buttons that Solution Admin can configure in Zinier: 1. Button component is the normal button user can click on. The button can be a primary or secondary button which will determine the color of the button. 2. The Dropdown Button component allows users to select from a list of buttons and execute an array of actions tagged to the clicked button. 3. Icon Button - Row action buttons inside a data grid which users can click on within a row.
Calendar	The Calendar Component can be used to show the schedules of users like technicians. Users can toggle between Day view, Week View, or Month View as well as toggle between days by using the arrow. On the hover of any event in a calendar, users can see more details about the event. These details can be configured by the Solution Admin. The calendar Component shows the date and time according to the web user's locale. It automatically converts date and time fields from the database from UTC to the user's local time.
Checkbox Component	Allows a user to select multiple options in a checkbox component in a side panel.
Contextual Banner	A contextual Banner is a way to show contextual information on a Component or a Section depending on the user's inputs. A Contextual Banner cannot be closed by the user. It disappears when user input does not fulfill the display conditions anymore.
Data Grid Component	The data grid is a component to display data in a tabular way. From a data grid, you can select a record to edit details or do other actions. Other features that can be configured are: - Bulk Import into Data Grids - Dynamic Filters in Data Grid - Static Filters in Data Grid - Export in Data Grid

Date & Time Components	Date & Time Components capture and display date, time or date and time fields. Users can input the date, time or date and time through the component in a side panel. There are several types of date & time components: 1. Date Component - used to capture dates only. Value is saved in UTC format 2. Time Component - used to capture time only. Value is saved in UTC format 3. DateTime Component - used to capture date and time together. Value is saved in UTC format. 4. Absolute Date Component - used to capture dates only. Value is stored as-is and not converted into UTC. 5. Absolute Time Component - used to capture time only. Value is stored as-is and not converted into UTC.
Dispatch Scheduler	This is a component that shows technicians in a data grid and their schedules for that day in Gantt or calendar blocks. Users can assign any task to any technician by drag&drop.
Duration Component	Duration Component allows users to input duration denominations in side panels. For example, users can input months, weeks, days, hours, minutes, seconds easily on the web.
File Upload Component	The file upload component is used to upload single or multiple files in a side panel.
Helper Text (Hover Text)	Helper Text (Hover Text) can be attached to any component in the side panel. The helper text will show a '?' icon on the field and on hover, the user will be able to see helper text configured in the JSON.
Iframe Component	Iframe Component allows users to view an Iframe that contains widgets or data from an external source on Zinier web apps.
Image in Side Panel	The image enables users to view an image on a side panel. The image can be clicked on to show the image in full size.
Info Text	Displays read-only text in a side panel.
Input Text	The input text component allows users to enter text or numbers in a string format. There are 4 types of Input Text: 1. Text 2. URL 3. Password 4. Email
Long Text/Text Area	The long Text or Text area component enables users to input long text-like comments or descriptions.
Map Component	The map component provides the ability to show multiple location points in a map. Users can view the pins on a map and hover on the pin to see more details. Users can also zoom in or out of the map and drag the map around to recalibrate pins. The map can be configured to show multiple types of pins like task location, technician location, site location.

Multiple Input Component	Multiple Input Component is a component where the user is able to add multiple inputs to the same field. Users can 'add more' multiple inputs for the same field, edit the inputs or delete the inputs. Multiple Input Component can be used for inputting 4 different field types: 1. Input Text (string fields like email, number etc) 2. Date Time 3. Date 4. Time
Phone Number	Phone Number Component is used to input phone numbers. Users can choose the country of their phone number and the country code will be automatically populated. Regex message will be shown if the phone number is not valid. For example, Singapore phone numbers are 8 digits long, if the user gives 6 numbers, the regex error message will be shown.
Radio Button Component	Radio Button Component allows users to choose one option out of a number of options in a side panel.
Searchable Dropdown and Advanced Search	Searchable Dropdowns allow users to select one or many options from a dropdown. Users can also search for the option by typing in the bar. Searchable Dropdown supports an 'Advanced Search' option when users need to know more information about the options before selecting. If enabled, an 'Advanced Search' button will be seen and on click of that button, the user will see a data grid with selectable options.
Static Dropdown	Static Dropdown allows users to select a value from a dropdown. Users cannot search within the Static Dropdown. Solution Admin can populate Static Dropdown options by query/read, workflow or data from pageContext.
Switch Component	Switch Component allows users to enable or disable something. This component is used inside panels only.
Video Player Component	Video Player Component allows users to play videos inside panels. Users can play, pause and expand videos.

Building Mobile Apps

The Zinier mobile application captures relevant information about customers, sites, and work orders. Any guided workflows can be sent to an engineer in the field to perform the task. The Zinier App is available for Android and iOS and can be downloaded from Google Play or Appstore. Below are the mobile feature highlights:

- **Capture Information digitally**
  There are many components that can be shown on a page in a workflow to either capture or show information. Users can scan assets or inventory items using the barcode scanner and capture a customer signature digitally at the end of a task.

- **Offline Support**
  If technicians plan to work in places with poor or no internet connection, they can download the tasks into the device before going to the sites.

- **Customizable workflows**
  Users can configure mobile workflows using the web platform, change and reorder pages in the mobile workflow. They can perform the updated tasks directly without having to update the app.

- **Multi-Language Support**
  Language barriers are no problem when following the task instructions on a mobile device. The Zinier App automatically detects the language settings of the operating system

Studio Z allows you to extensively customize existing Field Service Elements mobile workflows or you can create new workflows from scratch. Mobile workflows are associated with a mobile project.

Mobile Projects

Mobile projects are a group of workflows and mobile pages that combine to create tasks that field technicians interact with using the Zinier Mobile App. Each project is assigned to a group of users within the organization. An organization can have multiple projects for different user groups. Solutions admin can add new and edit mobile projects.

Mobile projects setup:

Custom Branding - Define custom colors, in order to customize the technician experience.

Define User Access - Choose which user groups have access to each Mobile Project. Mobile projects

Device Compatibility - Choose if the associated mobile workflows are accessible to Mobile, Tablets, or both.

Projects		Save	✕

General Information

Name ❓
SMW Mobile Project

Description
Mobile Project for Standard Mobile Workflows

Display Order ❓
0

Project Type
Tablet ▾

Hide Workflows ❓
No ▾

Version
1830

Appended Project
No ▾

Branding

Primary Color
#8079ef

Top Header Color
#8079ef

Top Header Text Color
#FFFFFF

Primary Button Color
#8079ef

Primary Button Text Color
#FFFFFF

Secondary Button Color
#A5A5A5

Secondary Button Text Color
#FFFFFF

Mobile Page Builder

The Mobile Page Builder helps Solution Admins build mobile pages in a drag and drop GUI interface. Mobile Pages are the actual pages a mobile user sees when using the Zinier app. Using the builder, Solutions Admins assemble mobile pages by dragging different mobile components onto the page and setting the configuration for each component. To create a Mobile Task, these pages are then assembled together using a Mobile Workflow.

Form View

Users can configure components using a form view, which interprets the JSON data and displays it in an easy-to-use GUI interface.
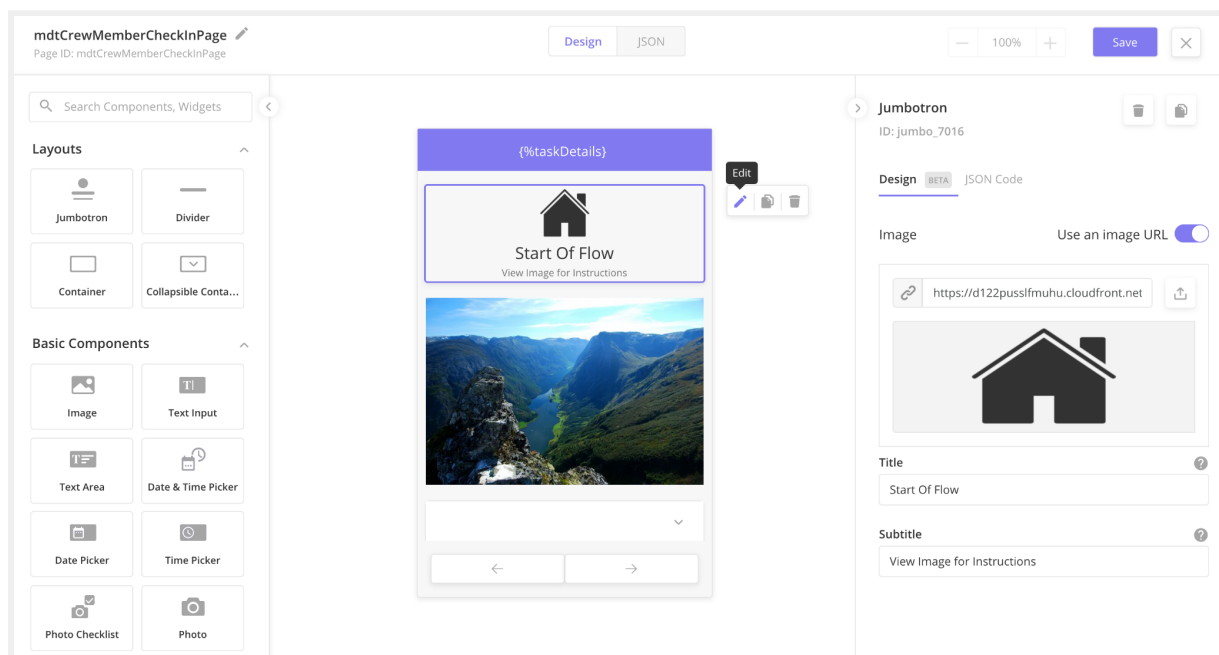
JSON View

Solutions Admins have the option of configuring the pages and components on the page using a JSON editor.
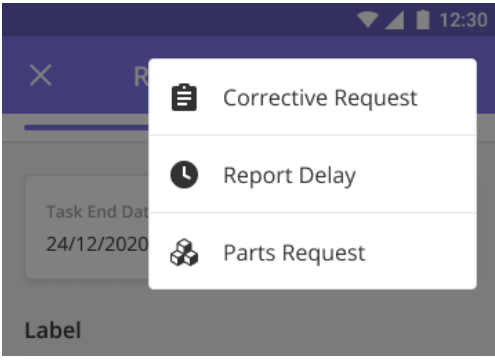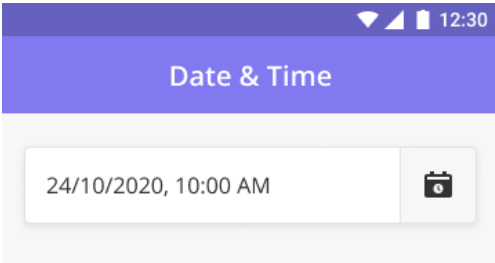
Mobile Components
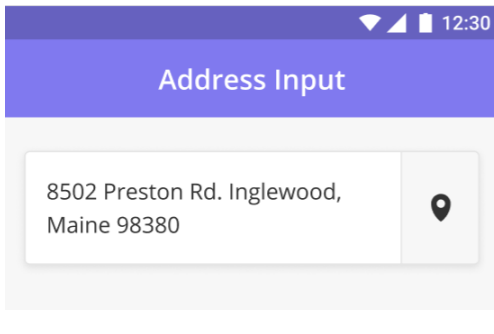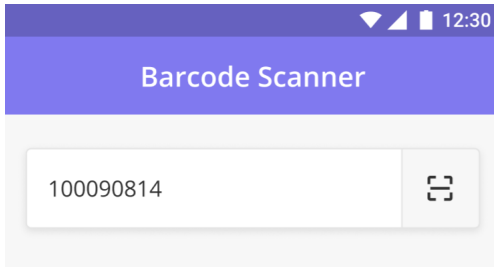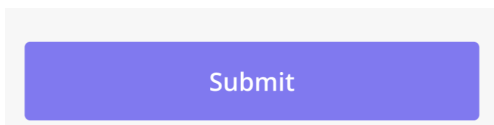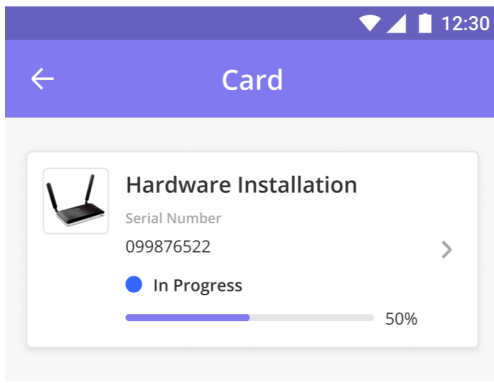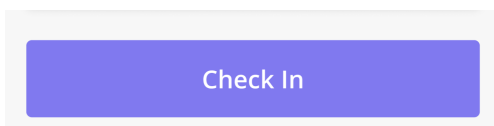
Mobile Components are the building blocks of a mobile page definition. The structure of each mobile component is in the form of a JSON object. All components have attributes that can be used to define their behavior.
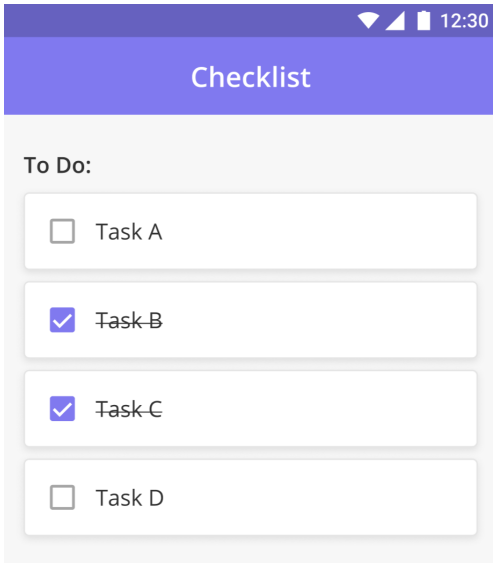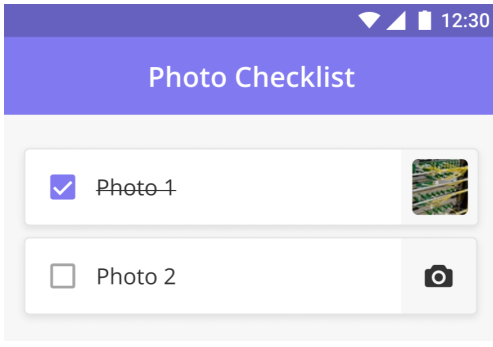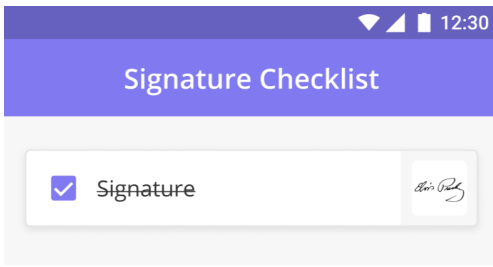
Show / Hide - Solution Admins can configure components to be visible or not based on user-defined logic. For example, a Solution Admin might only want to display a field if a specific dropdown value is selected in a previous dropdown component.
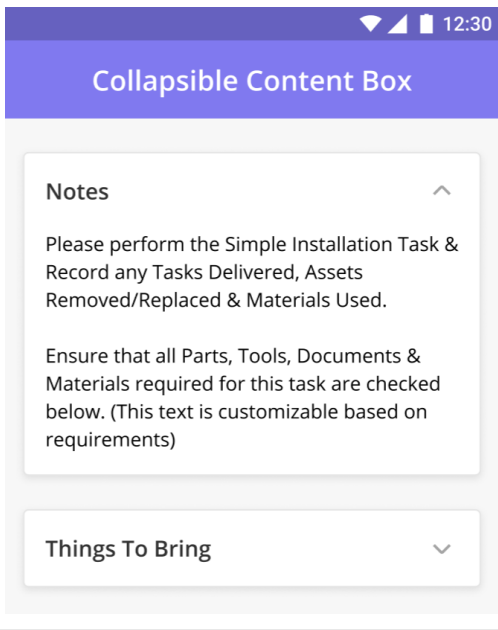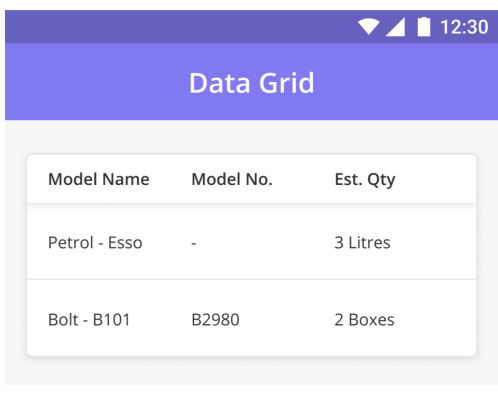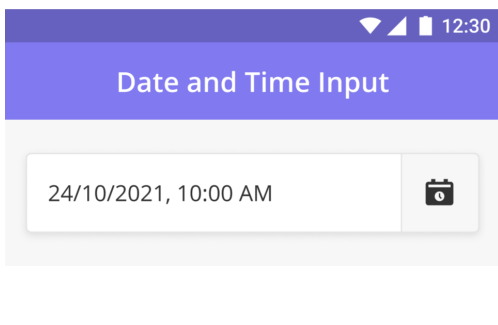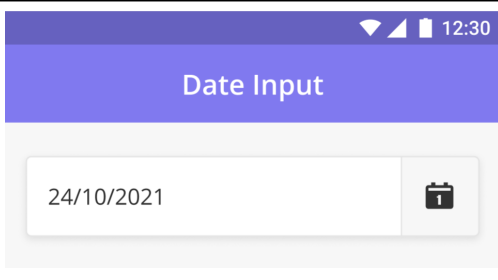
Required / Not Required - Solution Admins can configure components as required fields, meaning the fields must be filled or an error message will appear below the field notifying the mobile user that it must be filled in.
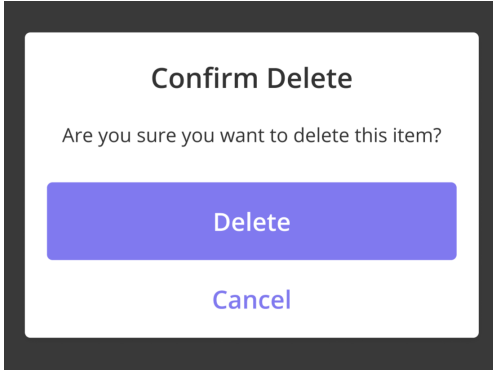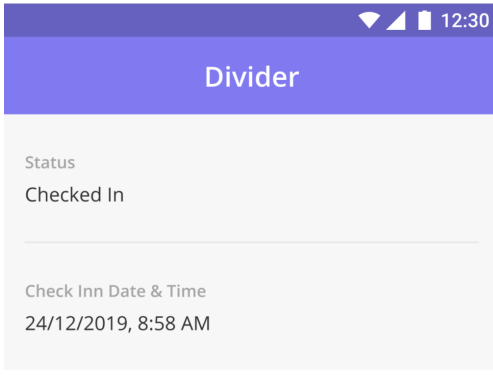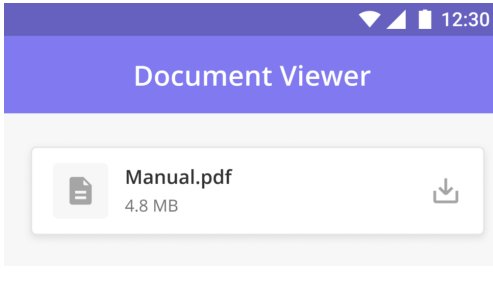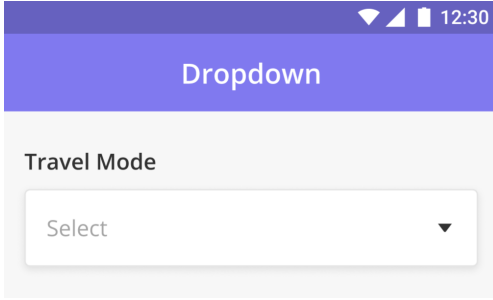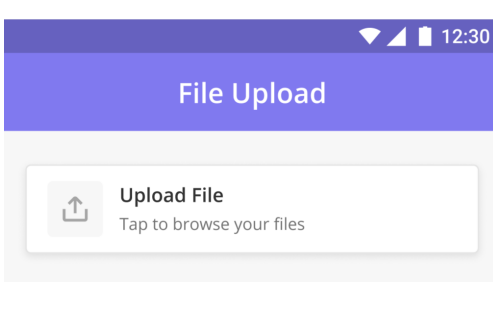
Enabled / Disabled - Solution Admins can configure components to be enabled or not based on user-defined logic. For example, a Solution Admin might only want to enable a field if a specific dropdown value is selected in a previous dropdown component. If that value is not selected, the component will be visible but not actionable.
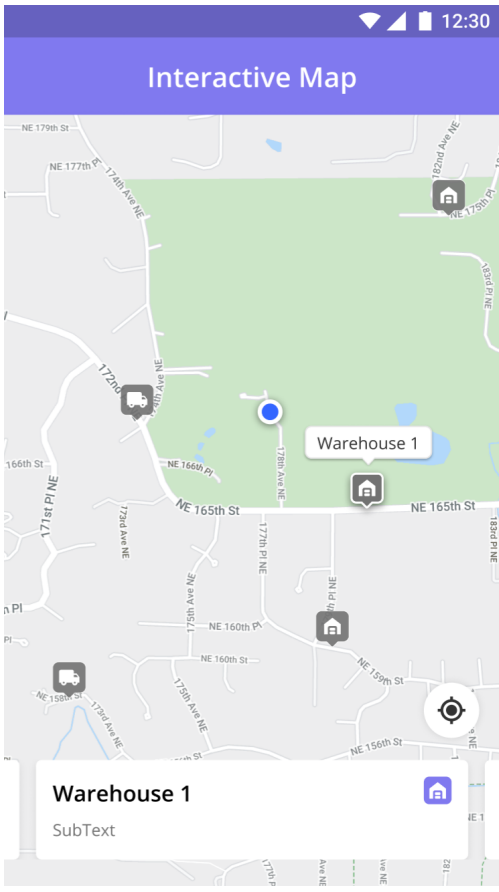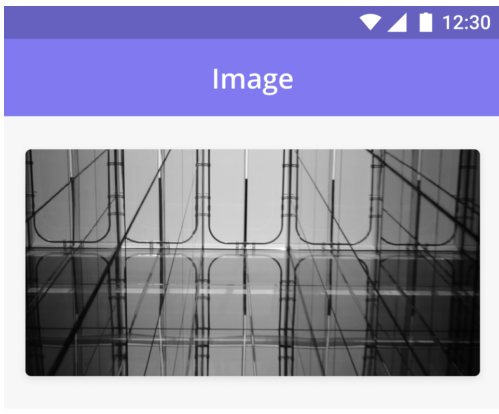
Component	Description	Example
Workflow Actions	Workflow Actions enable the user to call a separate page displaying a list of actions that can be performed, from within a Task. The available Workflows Actions can be found by tapping the "…" icon on the top left of the mobile navigation bar. For instance, if the user wants to add an SLA to the Issue Details in a Task, they can select "SLA" by clicking on "…" found in the top right corner of the "Issue Details" page.	
Absolute Date and Time Input	Absolute date and time components are useful when you want to show the same date or time in any timezone. Apart from this feature it works and looks the same as the input date or input time component. It is helpful when a few team members are at different timezone(s) but want to see the exact time or date.	

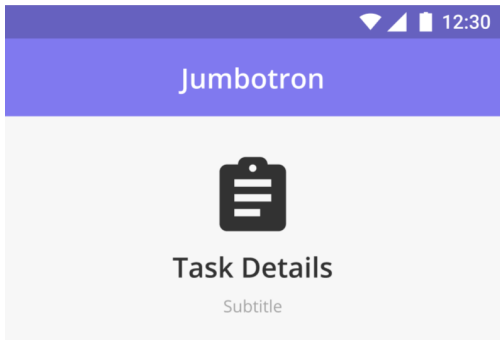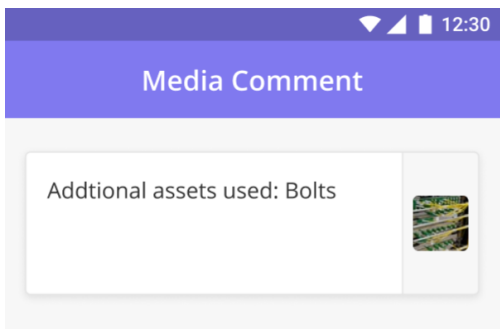|		
Address Input Field	Address input allows the Mobile app user to capture a new location. This can be helpful in case we want the Mobile app user-like technician to provide the location to our app. Users can drop a marker on the map or search for a location using its address. We use a third-party API service from Google to search for the location.	▼◢▮ 12:30 **Address Input** 8502 Preston Rd. Inglewood, Maine 98380 📍
Barcode / QR Code Scanner	Barcode/QR Scanner Component allows a mobile user to scan a barcode or a QR code from a mobile page.	▼◢▮ 12:30 **Barcode Scanner** 100090814
Buttons	The button is a clickable component that enables a user to perform an action such as submit a task or navigate from the current page to the next. A button icon arrow component supports a configurable icon on each side of the text i.e. left and right side inside the component. This can help the user to understand the context of the button's action with the help of a relevant icon. For example A button icon arrow component with a navigation icon and "Directions" as the title.	**Submit**
Card Component	The card is a configurable component that is designed to show information about a subtask or otherwise with different levels of details.	▼◢▮ 12:30 ← **Card** **Hardware Installation** Serial Number 099876522 > 🔵 In Progress ━━━━━━ 50%
Check-in / Check-out Button	Allows a mobile app user to check in or check out of a location when they are present there along with the mobile app or if they are within a certain range. It is helpful to identify if a mobile user like a technician is at a particular location. If yes then we	**Check In**
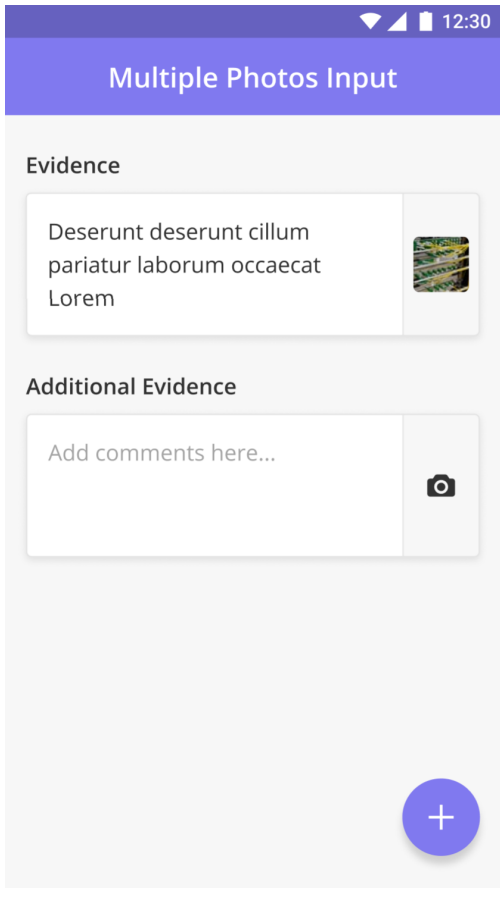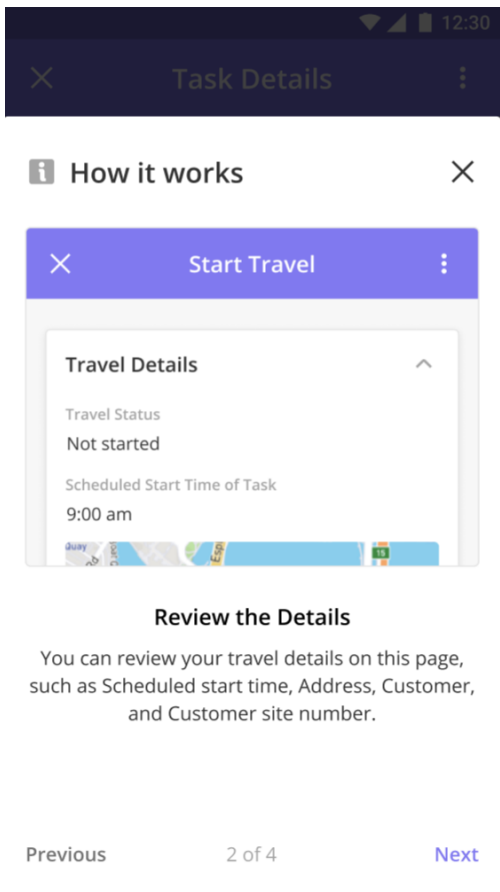
	can capture the time of the check-in. If they haven't reached the location or within the allowed range of radius then mobile app users will not be allowed to check-in and a message will be shown to the user informing them about it.	
Checkbox	Multiple Choice (Checkbox) is a way of presenting a list of options where the user can choose more than one option. This component can be used to activate or deactivate a certain function.	Checklist — To Do: Task A, Task B, Task C, Task D
Checklist - Photo	Allows for multiple photos	Photo Checklist — Photo 1, Photo 2
Checklist - Signature	Use this component if you want the user to take the signature as a compulsory requirement. Can be combined with other checklist components.	Signature Checklist — Signature

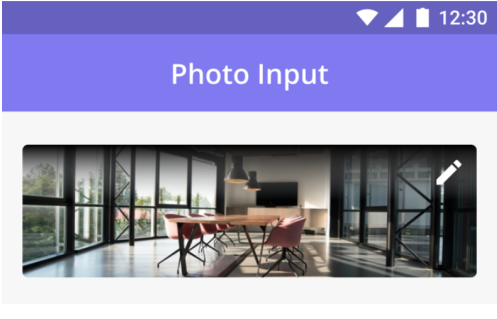|		
Collapsible Content Box	The Collapsible Content Box enables long chunks of text to be 'hidden away' unless the user presses on the downward-facing arrow. Any and all components can be added to the Collapsible Content Box.	**Collapsible Content Box** Notes ⌃ Please perform the Simple Installation Task & Record any Tasks Delivered, Assets Removed/Replaced & Materials Used. Ensure that all Parts, Tools, Documents & Materials required for this task are checked below. (This text is customizable based on requirements) Things To Bring ⌄
Data Grid	Data Grid allows data to be added to or displayed in a table. For Example, when a Spare Part needs to be added to a task, the Technician can do so by selecting the type of part and entering the quantity required. This will then be added to a Table as seen in the image.	**Data Grid** Model Name — Model No. — Est. Qty Petrol - Esso — - — 3 Litres Bolt - B101 — B2980 — 2 Boxes
Date and Time Input	This component captures the date and time. Tapping on it brings up a calendar and a clock popup. It would display both date and time in the input field. The time specified in the component configuration must be in the UTC Time zone. The time displayed to the user will be in the corresponding timezone and locale of the user's device.	**Date and Time Input** 24/10/2021, 10:00 AM
Date Input	When a user clicks on this component, it displays a calendar where the user can select a date. When you only want to capture the date, use this component.	**Date Input** 24/10/2021
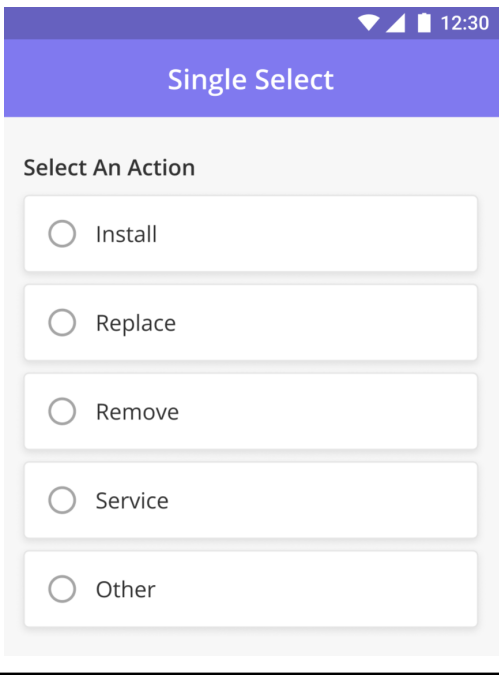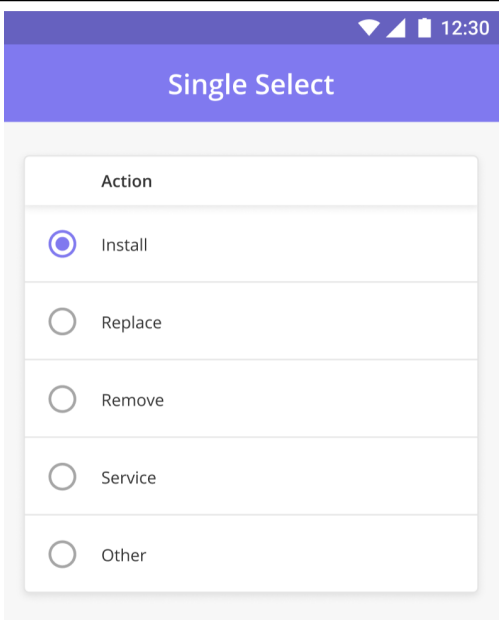
Delete Alert Pop-up	The delete alert info confirmation pop-up is a feature of different components to ask for confirmation whenever a user requests to delete the existing information in a component.	**Confirm Delete** Are you sure you want to delete this item? **Delete** Cancel
Divider	The Divider component acts as a partition between different sections of a mobile page. It appears on the screen like a horizontal line.	▼◢▮ 12:30 **Divider** Status Checked In Check Inn Date & Time 24/12/2019, 8:58 AM
Document Viewer (PDF / 3D Models)	Document Viewer allows Mobile users to download and preview different types of documents. For example, a Technician can download and read additional manuals required for an ongoing task. The Document Component is capable of previewing the following document types: PDF, 3D Models (.obj, .stl, .dae)	▼◢▮ 12:30 **Document Viewer** Manual.pdf 4.8 MB
Dropdown	Dropdown Component allows mobile users to select a value from the list of options on a mobile page.	▼◢▮ 12:30 **Dropdown** Travel Mode Select ▼
File Upload	Allows the Mobile app user to upload a file from their device to the Zinier app server. Sample use case: A technician as a mobile app user wants to upload a file to the Zinier platform. They are allowed to upload any file like image, video, document, etc. This component also allows the	▼◢▮ 12:30 **File Upload** Upload File Tap to browse your files
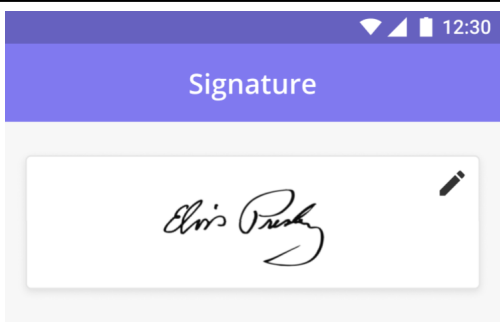
	download of an existing file. Sample use case: A technician has to fill up a form (like a word document or Excel sheet) during their task and upload it as well.	
Interactive Map (Multiple Points)	The interactive map component enables users to view a segment on a map with multiple points on it and associate each point with a separate page or subtask. This feature is useful in cases like patrolling or segment Maintenance Tasks when a Technician is expected to walk along a particular segment and check the status at multiple defined points along the way. You can also use the component to present other geospatial data such as inventory locations, other points of interest, etc to a technician.	
Image	The Image Component displays an image that has been uploaded via the Zinier web platform. For example, when a Technician wants to view the current or previous state of an asset at the Customer Site, the Image Component enables the image uploaded by the Web User to be displayed on the Technician's device.	
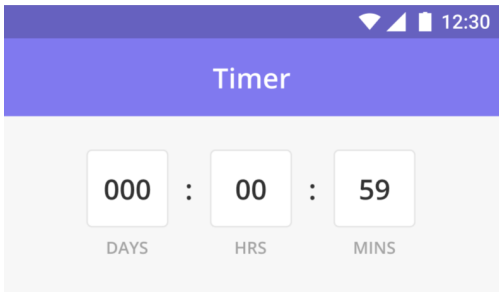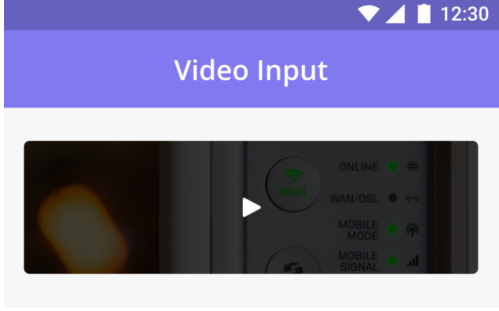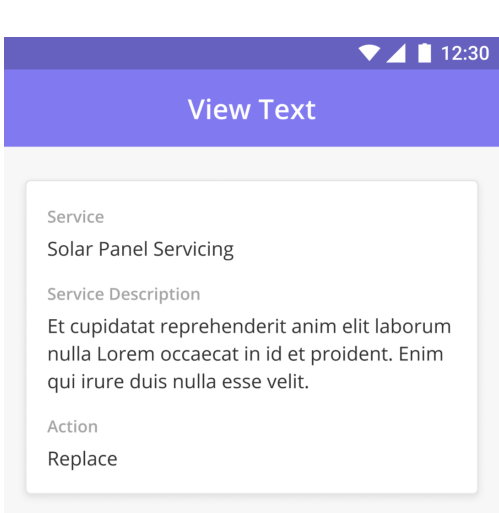
Jumbotron	The Jumbotron component is a combination of Icon and Text that acts as a header that helps users quickly understand a page's context.	
Map Single Point	Shows a map to the user with a specific location. A red bulb-shaped marker point is shown at the specified location. When a user taps on the marker a short address can be shown in the popup on the marker which looks like a tooltip. The map can display a maximum of one point.	
Media Upload with Comments	Combines a media checklist component with a text input comment box. This component is especially useful when the user wants to attach comments to the Photos or Videos uploaded by them.	

Multiple Media Component	The MultiMedia component is designed to cater to the requirement of having multiple photos or videos. For example, if there is more than one photo required on a page then we need to add 5 or more photo components. We may make the first photo component required and others can be optional. This use case can be better handled using multiple components. We can provide multiple components with a photo component. Users can add any number of photos to it.	**Multiple Photos Input** Evidence Deserunt deserunt cillum pariatur laborum occaecat Lorem Additional Evidence Add comments here…
Onboarding Guides	Onboarding Guides help Solution Developers guide new & first-time users to understand the process & the various options available when they use the Mobile App. The onboarding card supports media content which allows solution developers or trainers to embed content in an easy-to-consume fashion. - Mobile Users are shown the Onboarding guides when they come across a mobile page for the first time. - Onboarding Guides are optional & can be configured by the Solution Developer. - The content within the Onboarding Guide can be predefined or even be configured to read data from a context. - Users can explicitly invoke an onboarding flow via a workflow action.	Task Details **How it works** Start Travel **Travel Details** Travel Status Not started Scheduled Start Time of Task 9:00 am **Review the Details** You can review your travel details on this page, such as Scheduled start time, Address, Customer, and Customer site number. Previous 2 of 4 Next

Photo	Photo-related components are used to request the mobile app user to capture a photo via camera or upload images from their device gallery.	
Photo Annotation	Image Annotation is an additional component to add text, shapes, arrows, lines, and more to the picture. The purpose of this component is to help users visually communicate with the project manager when sending images to the task.	

Radio	The Single Select Radio Buttons allow users to select only a single option from a list of options. It is good to use it when there are only a few options available for the user to choose from.	**Single Select** Select An Action ○ Install ○ Replace ○ Remove ○ Service ○ Other
Single-Select From list	This component enables users to select single items from a given list. For example, if a technician needs to select parts used to complete a task, he or she can view the list of parts and click the radio button beside the required part.	**Single Select** Action ⦿ Install ○ Replace ○ Remove ○ Service ○ Other

Multi-Select From list	This component enables users to select <u>multiple items</u> from a given list. For example, if a technician needs to select parts used to complete a task, he or she can view the list of parts and click the radio button beside the required part.	
Signature	Mobile users can capture a signature on a mobile device. This can for example be used to capture a customer's signature.	
Text Input	Allows users to capture text within a Mobile Page. Text Inputs can be one of 3 types: Text Input, Number Input, Password Input	
Time Input	This component captures time only (without date). When a user clicks on this component, it displays a clock where the user can enter a time and specify if it's AM / PM. The time specified in the component configuration must be in the UTC Time zone. The time displayed to the user will be in the corresponding timezone and locale of the user's device.	

Timer	The Timer Component provides the user with a countdown that can be initiated and associated with any task. It can be used to track the time left with the mobile app user. Mobile users cannot directly start or stop a timer directly. The timer component is always driven by the backend configuration.	▼◢ ▮ 12:30 **Timer** **000** : **00** : **59** DAYS HRS MINS
Video input	Video-Input Component allows a Technician to capture a video using the device camera or upload a video from the device gallery. The file format of the video is .mp4. It also allows the user to add, preview, change and delete a video.	▼◢ ▮ 12:30 **Video Input** ▶
View Text	Text Component is a read-only field that contains the text. For example, the Titles and Headers for all pages make use of this component. The text can have different alignments - Left, Right, Center, and Justified. The Header and Paragraph Text components support Tap to Call / Email / Go to URL. Through this feature, numbers, email addresses, and URLs are highlighted. Tapping on these highlighted fields redirects a user to the phone's native phone calling, email application, or browser, respectively.	▼◢ ▮ 12:30 **View Text** Service Solar Panel Servicing Service Description Et cupidatat reprehenderit anim elit laborum nulla Lorem occaecat in id et proident. Enim qui irure duis nulla esse velit. Action Replace

3.9   Architecture and Integration

3.9.1   High Level Architecture

High Level Architecture
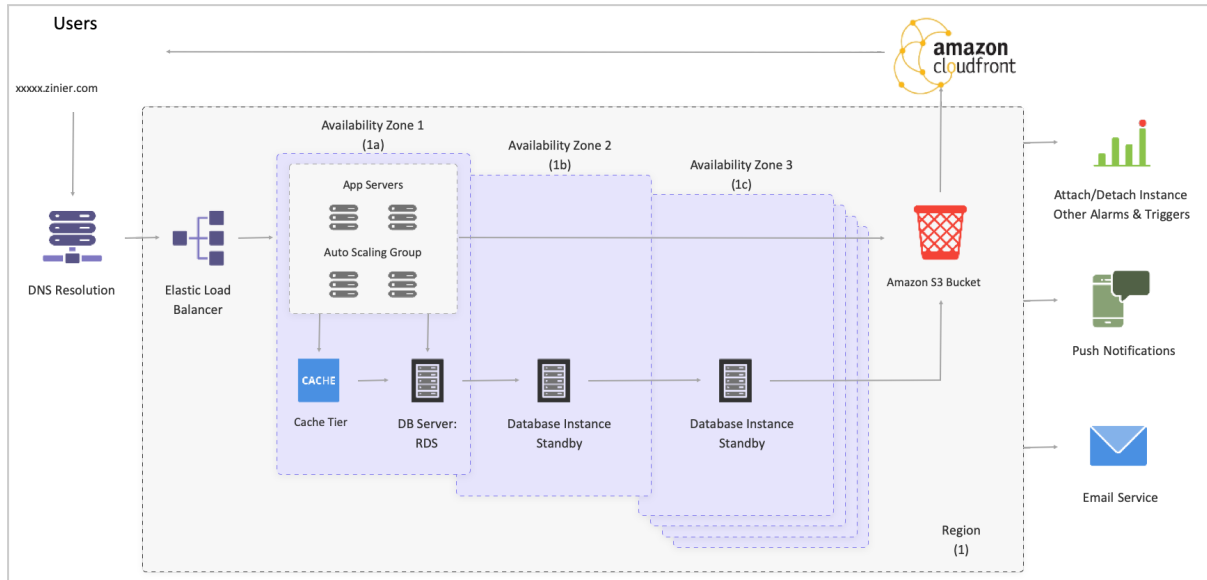
Zinier deploys its applications using a three-tier architecture in which the business logic, data storage, and user interface are developed and maintained as independent modules. The three tiers are represented as follows:

1. Presentation tier: Occupies the top level and displays information related to services available on a website. This tier communicates with other tiers by sending results to the browser and other tiers in the network.

2. Application Tier: Also called the middle tier, logic tier, business logic, this tier is pulled from the presentation tier. It controls application functionality by performing detailed processing.

3. Data Tier: Houses the database where information is stored and retrieved. Data in this tier is kept independent of the application servers or business logic.

Zinier is a cloud platform that relies on Amazon Web Services (AWS) for all its computing, database, and storage needs. AWS is a secure cloud services platform, offering to compute power, database storage, content delivery, and other functionality to build applications with increased flexibility, scalability, and reliability.

3.9.2 Integration Capability

The Zinier platform provides a series of interfaces to integrate directly with third-party systems and platforms. The integration interfaces supported are:

- REST API – Uses HTTP/HTTPS requests to obtain GET, PUT, POST, and DELETE data. The REST API is active by default in all instances.

- SOAP - Zinier can publish all available APIs as SOAP API. SOAP messages are sent with the assumption that the recipient is compatible with XML. No encoding is applied to SOAP messages. SOAP always decodes the responses as UTF-8, the XML encoding header is not used.

- OAuth /SAML - Zinier platform provides the ability to authenticate using third-party authentication providers using OAuth or SAML

- Data export

- Email

Note: All Zinier product interfaces use the JSON format natively. The API can be invoked through REST. In addition to the JSON / REST combination, interfaces are also available in XML format through the SOAP protocol. The SOAP / XML interface is a wrap around the REST / JSON format.