Flocktracker: Technical components

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1 The Need

A mobile urban field research tool
- Simple to use, powerful, robust
- To generate and deploy rich field data collection projects including interviews, observations and route tracing.
- With little or no previous knowledge of programming or database creation/management.
- To enable location-based analysis
- To allow for surveys and field observations, with TSTs (Temporal Space Tags).
- To eliminate data entry and coding error
- To track data collection in real-time
- To empower a range of stakeholders to collect data on a range of questions of interest to themselves

2 FlockSON

Markup language to specify content, structure and flow of instruments, that can be personal surveys or observations of other non-human subjects. The components of Flocktracker communicate in FlockSON instances.

Structures of the language are:
- Survey/Observation The container of all the surveying project, contains an array of chapters.
- Chapter A container for arrays of questions, generally on the same subject. It allows changing the flow of the survey depending on the subject.
- Question The supported question types are:
  - Open Text (OT) For free text input.
  - Open Number (ON) For free numerical input.
  - Multiple Choice (MC) For choosing one between several answer presets.
  - Checkbox (CB) For choosing one or more between several answer presets.
  - Picture (IM) For taking pictures.
  - Loop (LP) For asking the same set of questions a variable number of times.
- Jumps For altering the flow of the survey/observation.
- FlockScript To create projects with dynamic content, FlockScript, based on JavaScript is now in development. This will allow question flows and content that change on runtime for more niche functionalities, like questions that randomize the possible answers and questions that are formulated based on the location of the device when the survey is being made.

3 Software components

- **Android App** To survey/observe, count and track paths with a smartphone. Based on the configuration created in the Survey Builder, the app is capable of showing complex structure surveys to the user while keeping track of location and counters defined by the user. One device is able to track a route, do surveys and keep track of counting parameters at the same time.
- **Web App**
  - User and project management To handle teams and permissions to edit the information stored on the database.
  - Survey Builder To create and configure the projects for the app. Based on the FlockSON survey markup language, developed purposely for the platform, enabling users with little-to-no technical knowledge to create and deploy data collection projects.
  - Dashboard A web-based interface enabling project monitoring and data sharing and visualization. Real-time display, in maps and charts, of data collected, to improve project management and monitoring and publish final data.

4 Project workflow

![Dashboard](dashboard.png)

Android app

- **Web App**
  - On site data collection (surveying/observing, counting, tracking)
  - Parses FlockSON to generate the views (questions, tracker, counters)
  - As many instances (surveyors) as needed

- **Dashboard**
  - Project management
  - Data analysis
  - Mapping data
  - Exporting data

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