

# VEDILS: a toolkit for developing Android mobile apps supporting mobile analytics

Abstract: VEDILS (<http://vedils.uca.es>) is an authoring tool based on App Inventor (MIT) for easily developing Android mobile apps. Using this tool, users without strong programming skills are able to design and build by themselves mobile apps. App Inventor have been extended to include components for Augmented Reality, Virtual Reality, Human Gesture Recognition, Robots and Learning Analytics (LA). The LA component allows to develop applications that collect data about user interactions and their context, analyze the data, visualize of results, and allows intervention in the learning process. The process is described in this poster.

## Authoring Tool

to create Android applications.

**VEDILS** include some components to develop apps enriched with Augmented Reality, Virtual Reality, tracking and gesture recognition of hands with *LeapMotion* and arms with *Myo*, monitoring brain sensor with *Emotiv*, robotics with *Sphero*, and Learning Analytics (LA).

## Data

of user's interactions can be retrieve in a manual or automatic way. Context can also be obtained through sensors: geo-position; orientation; accelerometer primitives; proximity information; camera and microphone streams; near-field communications (NFC).

## Cloud storage

of data in **Google Fusion Tables**, that provides basic supporting for analytics. Contextual information such as date/time, application and screen's identifiers where the event are generated, IP and MAC addresses, IMEI (if available) and geographic coordinates are also persisted.

## Querying data

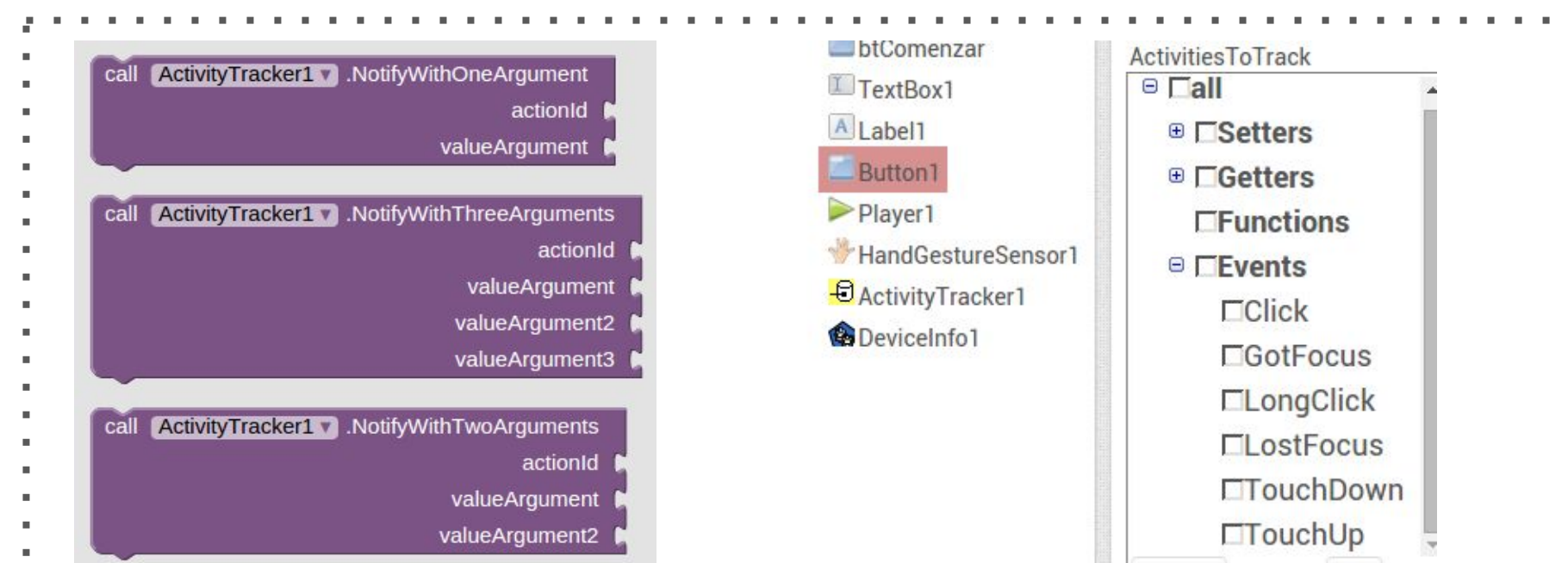
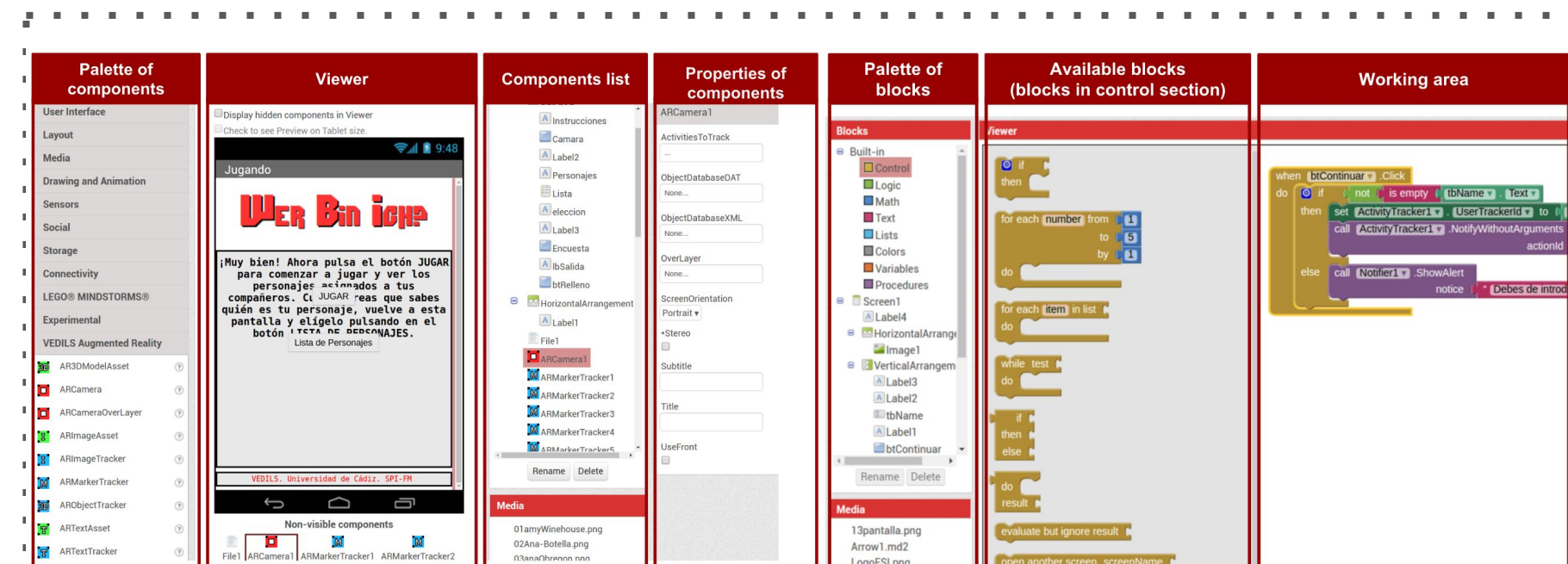
through components that enables to issue SQL queries over the data storage. The queries may include filters over several attributes and aggregators such as the operators count, maximum, minimum, sum and average.

## Dashboards

can be included in the apps. Various components enable the creation of data tables or simple charts such as pies, lines or bar charts. The information can be updated in real time.

## Intervention

on learning can be done in real time by sending messages to the app's users or by adapting the flow control in the application itself.



UserID	IP	MAC	IMEI	Latitude	Longitude	Date
Test	192.168.1.3	40:40:a7:58:81:f2	354188073617271	36.53859	-6.202123333333333	2016-06-30 01:04:52
Test	192.168.1.3	40:40:a7:58:81:f2	354188073617271	36.53859	-6.202123333333333	2016-06-30 01:04:54
Test	192.168.1.3	40:40:a7:58:81:f2	354188073617271	36.53859	-6.202123333333333	2016-06-30 01:04:58
Test	192.168.1.3	40:40:a7:58:81:f2	354188073617271	36.53859	-6.202123333333333	2016-06-30 01:05:02

AppID	ScreenID	ComponentID	ComponentType	ActionID	ActionType	InputPa
appinventor.ai_tatyperson22.TestActivityTracker	Screen1	Button4	Button	Click	Event	
appinventor.ai_tatyperson22.TestActivityTracker	Screen1	Button1	Button	Click	Event	
appinventor.ai_tatyperson22.TestActivityTracker	Screen1	Button2	Button	Click	Event	
appinventor.ai_tatyperson22.TestActivityTracker	Screen1			CaseOne	SPECIFIC	1

