

# ICE Editor

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## 1 ABSTRACT

ICE Editor is my bachelor thesis during my undergraduate studies in Computer Science department at the University of Crete. This project is a part of a PhD research which main goal is to use efficient means of communication between IOT devices in terms of energy and time using bluetooth technology.

## 2 INTRODUCTION

ICE Editor is a single-page web application which allows an end-user to develop simple applets in IOT devices. This project can be categorized to VPL (Visual Programming Language). The user can easily drop & drop elements (If, While, For statements etc.) and edit values (variables, arrays, objects etc.). It is an editor which prevents the user to have either compile or runtime (as possible) errors thanks to the strict way of developing code and the runtime checks for valid use of variables.

## 3 DESCRIPTION

### 3.1 TECHNOLOGIES

ICE Editor is written using:

- An HTML file (single-page application)
- Javascript for the main logic of the application

- CSS and LESS technologies for styling
- JQuery framework for faster DOM manipulation
- Bootstrap for the responsive design
- FontAwesome for some basic ui elements like: undo, redo, remove etc.
- Canvas.js framework for the object rendering

### 3.2 METHODOLOGY

I created a middleware layer between Canvas.js and my application in order to create, edit and delete easier and faster programming components. As result, executing:

```
new ForElement (id , elementOffset , father , data);
/*
id: unique element id
elementOffset: position in parent element
father: reference to parent element
data: object describing for loop data
*/
```

### 3.3 FEATURES

Undo/Redo See all programs

### 3.4 SIDEBAR

The application contains a sidebar a toolbox. The sidebar contains two lists. The first is called 'Elements' it contains all of the available programming structures (loops, statements and flows) that a user wants to add in his application. For example,



Figure 1: A simple caption

And here we see figure 1.

### 3.5 INTERACTION

Users can easily create new programs with two ways. First, by drag & drop element from the side bar into the canvas and second using the provided abstract API importing JSON files.