

# **HYBRID APP DEV**

## **S E N S O R S , D E V I C E I N F O**

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C R E A T I V E A P P S , D E C 2 0 1 6

# PREVIOUS

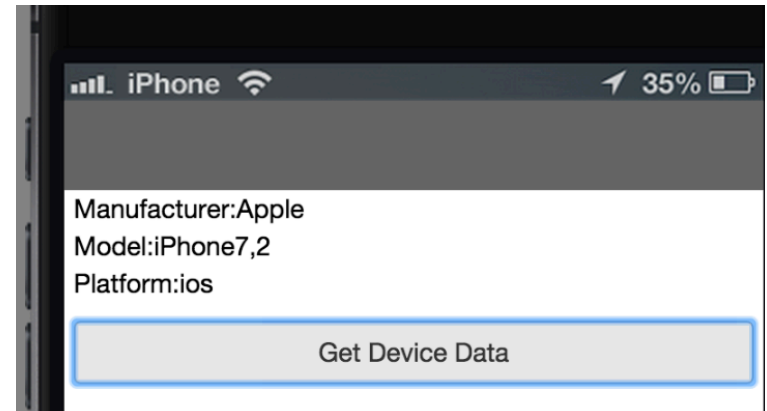
- UI / interaction guidelines
- Raise awareness about mobile development technologies
- Practice
  - UI
  - Data

# TODAY

- Device Data
- Sensors
- Plugins

# Exercise 1: Device Data

- When user taps on a button (i.e. onClick event) show basic device data:
  - Manufacturer
  - Model
  - Platform
- Look at:



<http://cordova.apache.org/docs/en/latest/reference/cordova-plugin-device/index.html>

# Solution

```
/* button Button */
$(document).on("click", ".uib_w_2", function(evt)
{
    /* your code goes here */
    $('#deviceData').html('Manufacturer:' + device.manufacturer + '<br>');
    $('#deviceData').append('Model:' + device.model + '<br>');
    $('#deviceData').append('Platform:' + device.platform + '<br>');
    return false;
});
```

# Note

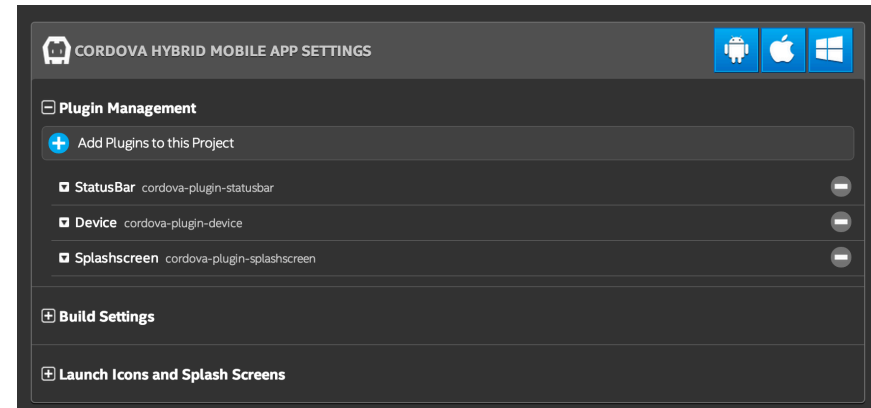
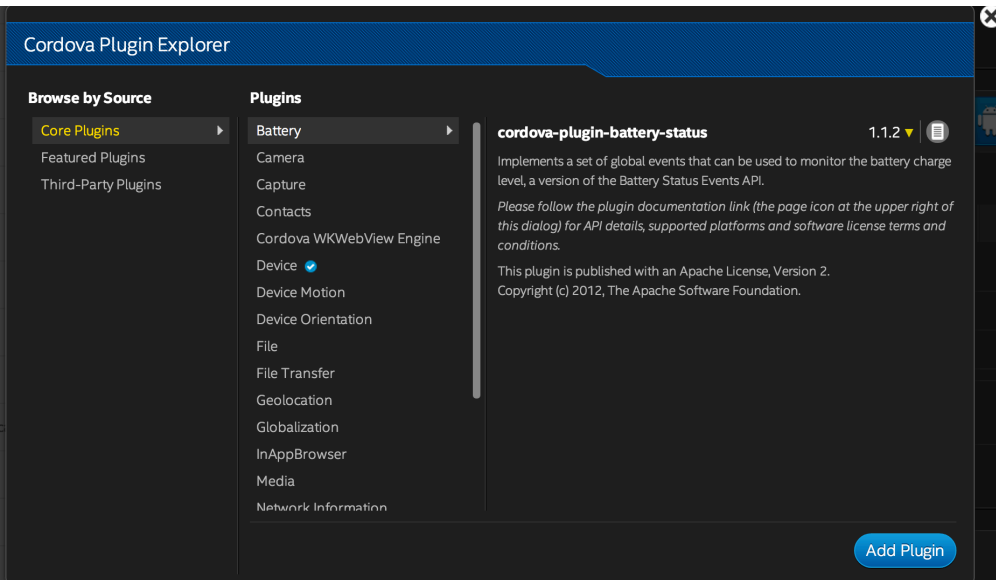
- In the previous exercise you could get the device's data because Cordova's necessary plugin is already included in a new XDK project
- Should you want to add new functionality you need to make sure to FIRST include the necessary plugin

# Plugin Types

- There are plugins that are supported by Cordova and these are stable (more mature)
  - <http://cordova.apache.org/docs/en/latest/#plugin-apis>
- There are plugins from “third-parties”.
  - More “exotic” functionality
  - Might not be as stable or not support all OSs
  - Need to search at:  
<https://cordova.apache.org/plugins/>

# Add Plugin To Project

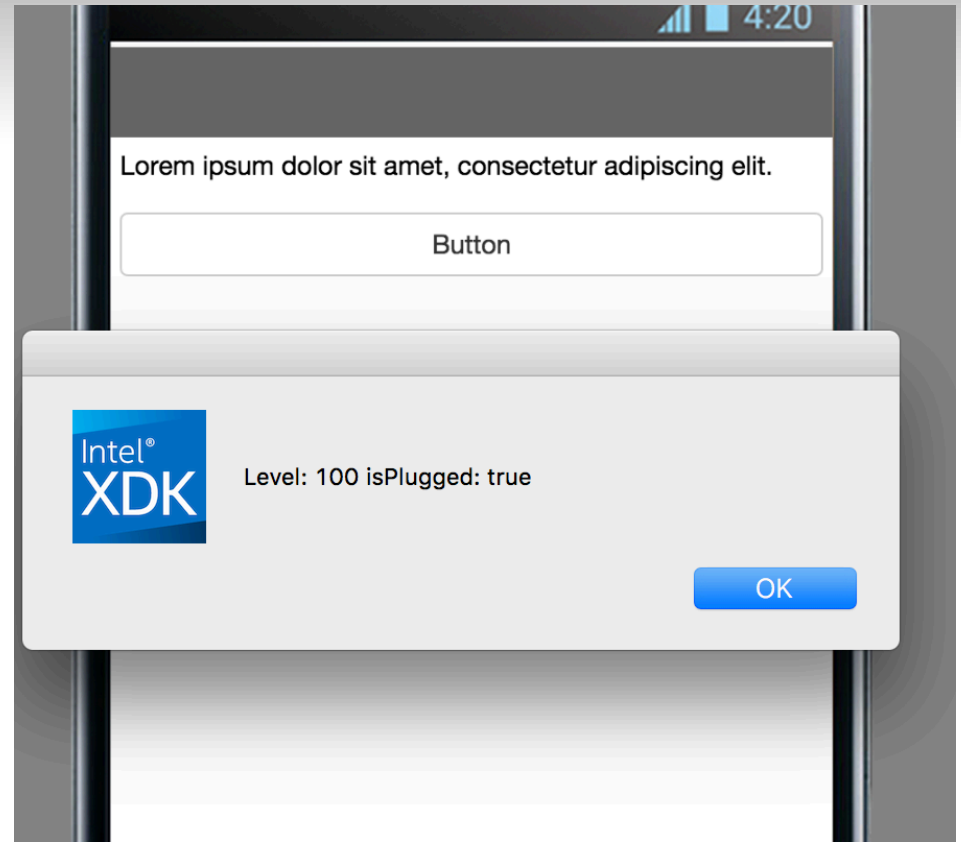
- Click on the “Projects” icon (top left)
- Look for “Plugin Management”
- Click “Add Plugins to this Project”





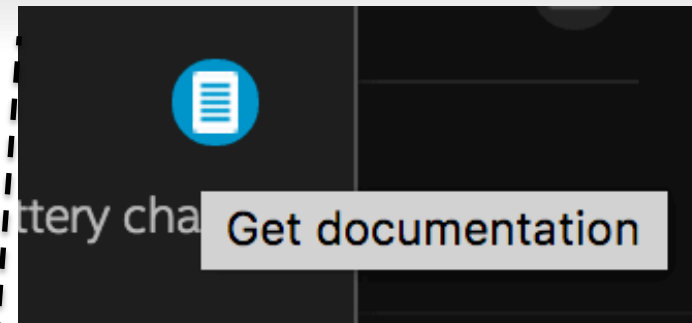
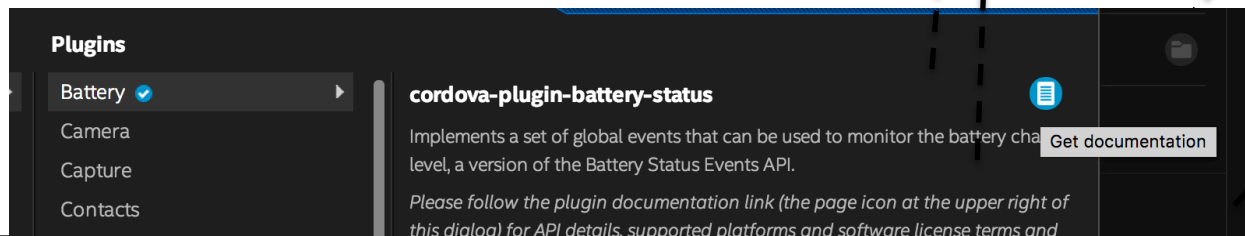
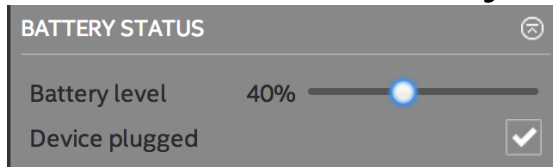
# Exercise 2a: Battery

- Get device's battery level and whether it is plugged
- Show previous data on a message



# Exercise 2a: Tips

- Do not forget to add to the project the necessary plugin!!!
- Check plugin documentation
- Official documentation can be accessed directly from XDK:
- Emulator is handy:



# Exercise 2a: Solution

- (adapted from:  
<http://cordova.apache.org/docs/en/latest/reference/cordova-plugin-battery-status/index.html#example>)

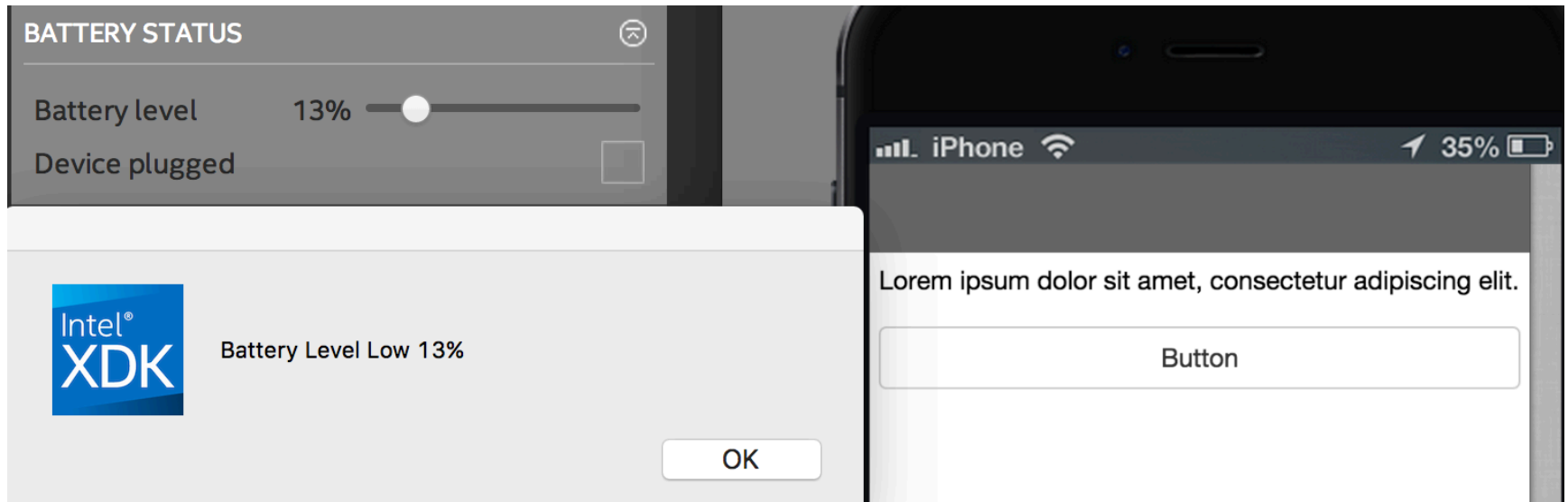
```
function register_event_handlers()
{

    window.addEventListener("batterystatus", onBatteryStatus,
    false);

    function onBatteryStatus(status) {
        alert("Level: " + status.level + " isPlugged: " +
        status.isPlugged);
    }
}
```

# Exercise 2b

- Show to user a message when battery is low
- Tips:
  - Need to play around with Battery Level
  - Level is device-specific



# Exercise 2b: Solution

- Got from:  
<http://cordova.apache.org/docs/en/latest/reference/cordova-plugin-battery-status/index.html#battery-low-event>

```
function register_event_handlers()
{

    window.addEventListener("batterylow", onBatteryLow,
    false);

    function onBatteryLow(status) {
        alert("Battery Level Low " + status.level + "%");
    }
}
```

# Exercise 3a: Contacts

- Find how many contacts exist for a certain name
- Emulator does not have contacts, need to test Exercises 3 & 4 on your own device
  - Push project to Testing Server (Test tab in XDK)
  - Use Intel's App Preview on your own device

# Exercise 3a: Solution

## Example

```
function onSuccess(contacts) {
    alert('Found ' + contacts.length + ' contacts.');
```

```
function onError(contactError) {
    alert('onError!');
```

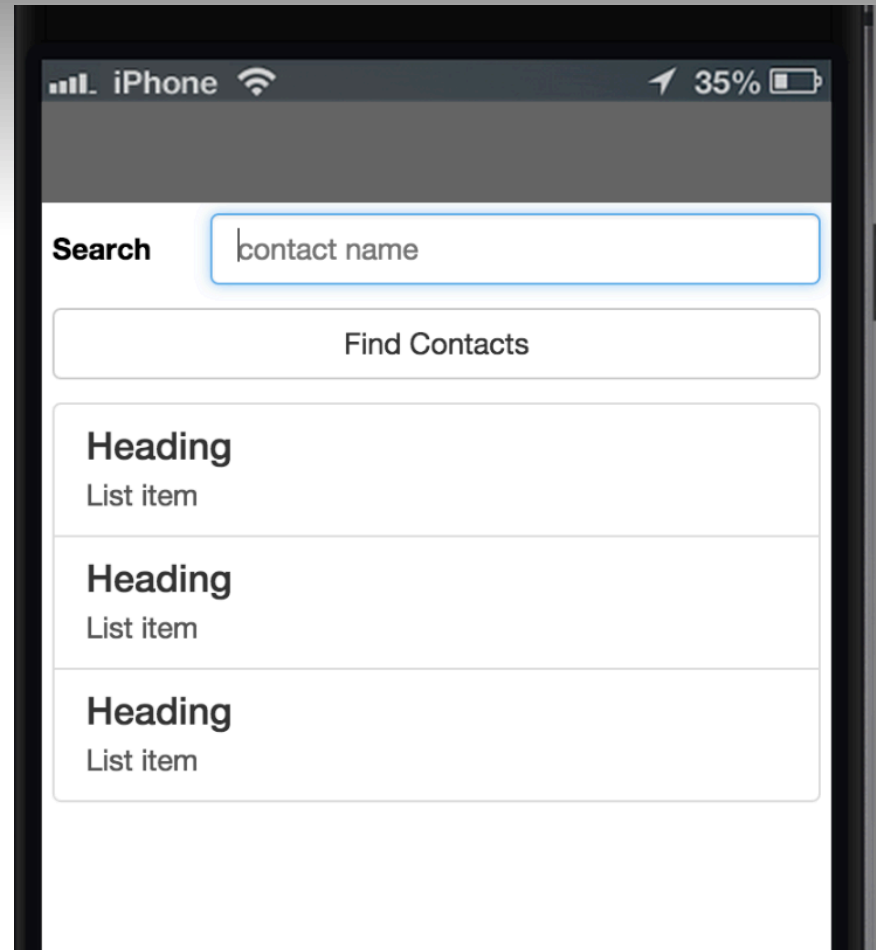
  

```
// find all contacts with 'Bob' in any name field
var options      = new ContactFindOptions();
options.filter    = "Bob";
options.multiple  = true;
options.desiredFields = [navigator.contacts.fieldType.id];
options.hasPhoneNumber = true;
var fields        = [navigator.contacts.fieldType.displayName, navigator.contacts.fieldType.phoneNumber];
navigator.contacts.find(fields, onSuccess, onError, options);
```

- <http://cordova.apache.org/docs/en/latest/reference/cordova-plugin-contacts/index.html#example>

# Exercise 3b: Contacts

- Make your own contact book finder
- Tip:
  - Start from the ContactName example:  
<http://cordova.apache.org/docs/en/latest/reference/cordova-plugin-contacts/index.html#contactname>





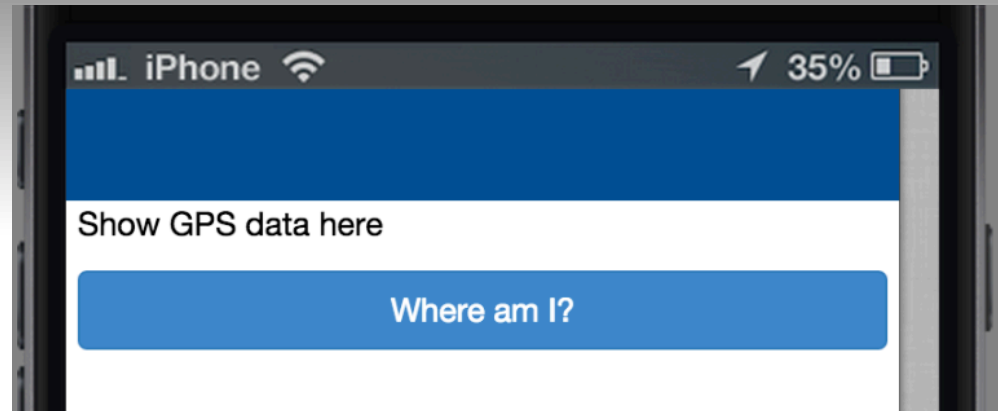
# Exercise 3b: Solution

- In Wiki

# Exercise 4: Location

- When user taps on button find latitude and longitude
- Tip:
  - Emulator is handy:

Latitude	47.465187
Longitude	-80.522372



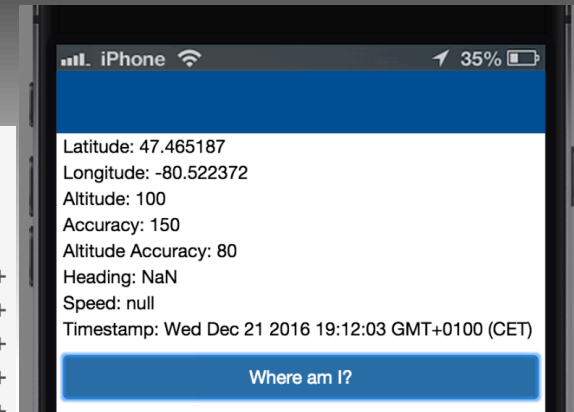
# Exercise 4: Solution

```
function register_event_handlers()
{
    var onSuccess = function(position) {
        $('#showData').html('Latitude: ' + position.coords.latitude + '<br/>' +
            'Longitude: ' + position.coords.longitude + '<br/>' +
            'Altitude: ' + position.coords.altitude + '<br/>' +
            'Accuracy: ' + position.coords.accuracy + '<br/>' +
            'Altitude Accuracy: ' + position.coords.altitudeAccuracy + '<br/>' +
            'Heading: ' + position.coords.heading + '<br/>' +
            'Speed: ' + position.coords.speed + '<br/>' +
            'Timestamp: ' + position.timestamp + '<br/>');
    };

    // onError Callback receives a PositionError object
    //
    function onError(error) {
        alert('code: ' + error.code + '\n' +
            'message: ' + error.message + '\n');
    }

    /* button Where am I? */
    $(document).on("click", ".uib_w_3", function(evt)
    {
        /* your code goes here */
        navigator.geolocation.getCurrentPosition(onSuccess, onError);
    });

    document.addEventListener("app.Ready", register_event_handlers, false);
}
```

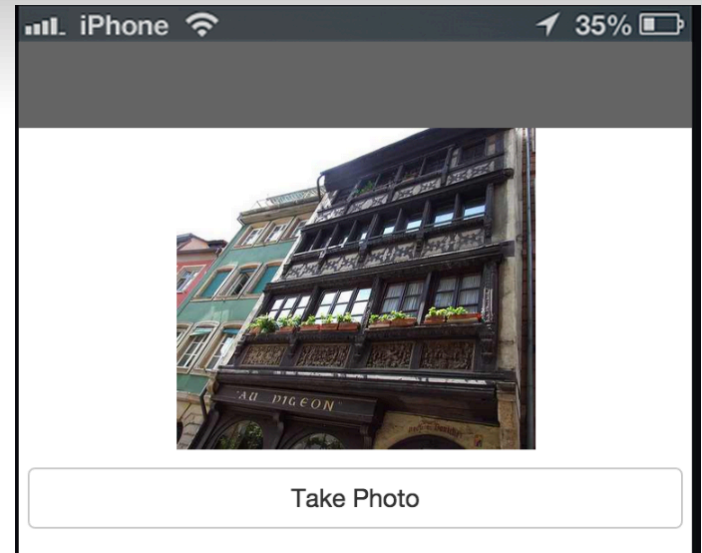


Adapted from:

<http://cordova.apache.org/docs/en/latest/reference/cordova-plugin-geolocation/index.html#example>

# Exercise 5a: Camera

- Example:
  - UI: header, img, button
  - Interaction: when button (*id*="btn") is clicked camera can be used to take photo, photo is then displayed on img (*id*="showPhoto")
- Try it on your device
  - Use "Test" tab: "Push to Testing Sever" in combination with the "App Preview" app on your phone



# Exercise 5a: Solution

```
function register_event_handlers()
{
    function onSuccess(imageURI) {
        var image = document.getElementById('showPhoto');
        image.src = imageURI;
    }

    function onFail(message) {
        alert('Failed because: ' + message);
    }

    /* button #btn */
    $(document).on("click", "#btn", function(evt)
    {
        /* your code goes here */
        navigator.camera.getPicture(onSuccess, onFail, { quality: 50,
            destinationType: Camera.DestinationType.FILE_URI });
    });

}

document.addEventListener("app.Ready", register_event_handlers, false);
```

- Adapted from:  
<http://cordova.apache.org/docs/en/latest/reference/cordova-plugin-camera/index.html#example->

# Exercise 5b: Vibration

- Add to the previous exercise a 1 second vibration when a photo is successfully taken
- Tip:
  - Look for the appropriate plugin

# Happy Coding For 2017!

- Summary:
  - Device Data
  - Sensors
- Next session 9 Jan 2017: more sensor-related exercises