Mobile Device IoT using Blynk

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Mobile Devices and IoT

- Critical component of many IoT solutions is the mobile phone/tablet.
  - IOS/Android dominate
- 2.6 billion users worldwide
  - Simple, mobile connection to the internet
- Provides nice features for IoT apps
  - Packed with sensors (Location, accelerometer, camera)
  - Can connect/interlink other smart devices using Bluetooth, BLE, etc.

Mobile Apps in IoT, Examples

- Wearables
  - wristwatches, eyeglasses and rings
- Healthcare
  - Medical sensors obtain health data and transfer to a mobile app.
  - This data can be transferred remotely to doctor/ family members
- Smarthome
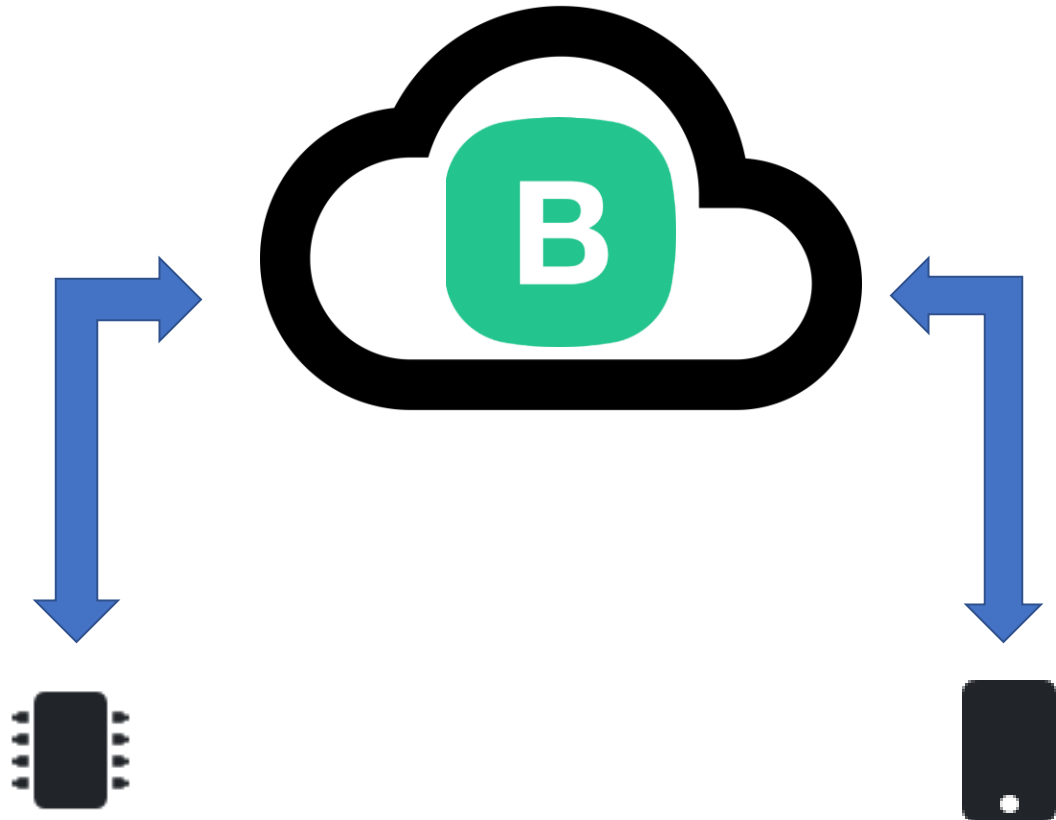 - Nest – see whos at the door...
- AgriTech
  - MooCall

What's Blynk

- Yet Another IoT Platform
  - Specialism: mobile application builder
- "Get any electronic equipment online, connect it to the Internet, and build a mobile application"
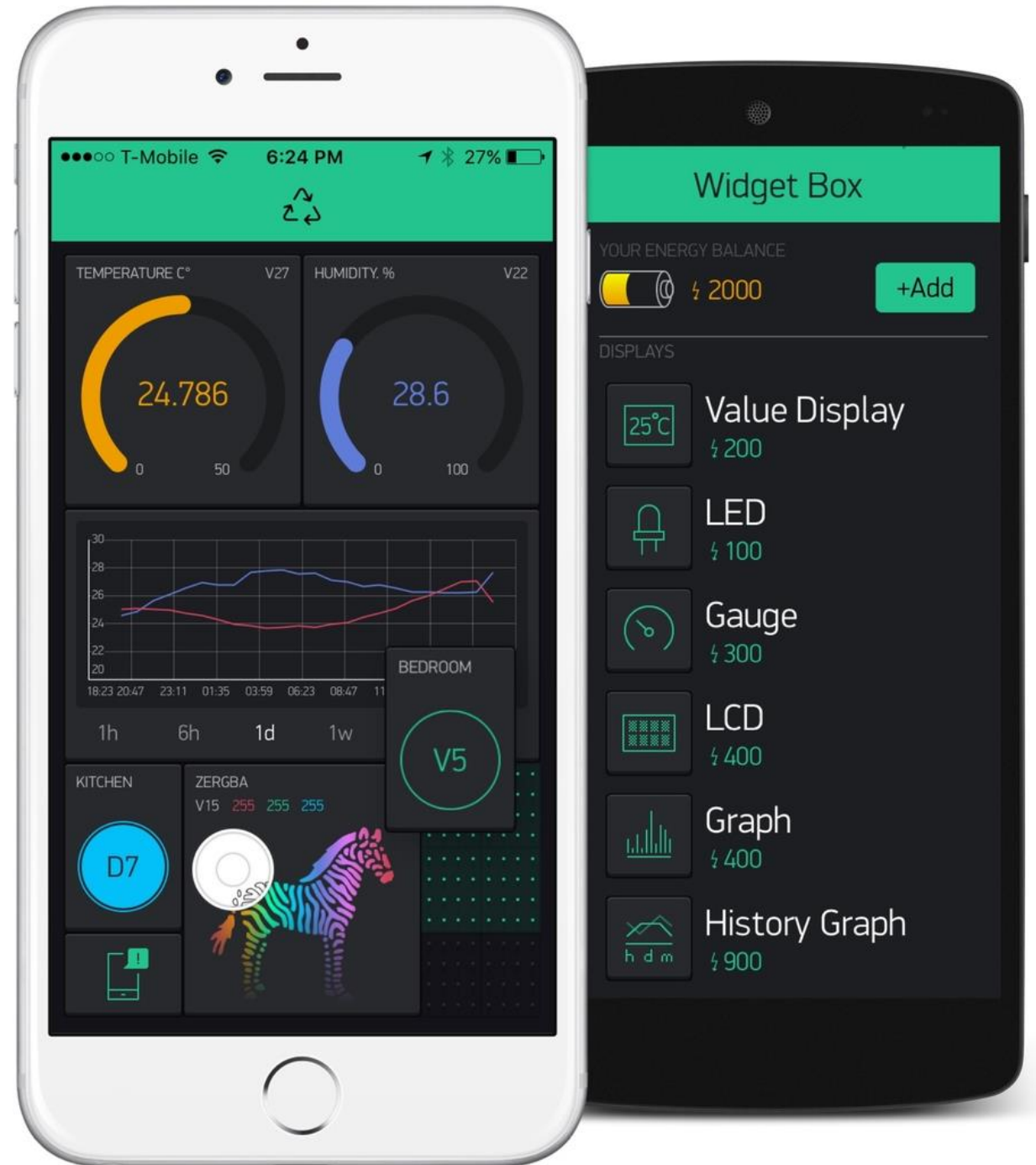
Platform Architecture

- 3 main components
  - Libraries
  - Server
  - Blynk Application

Blynk App

- Available for the two main platforms
  - IoS and Android
- Allows you to create mobile applications using drag and drop
  - Uses "widgets"
- No Code!!!
  - Don't worry – that comes later

Blynk Server

- Controls all the communications between the mobile device(e.g. your phone) and hardware (e.g. the RPi)
  - Remember we talked about the benefits of indirect communication.
- It's Cloud-based but you can run your own private Blynk Server
  - A bit like MQTT...

Blynk Device Libraries

- Available for most popular hardware platforms
  - RPi, Arduino, Intel Edisson...
- Enable communication with the server and process all the incoming and outcoming commands.
- We'll be using a Node-based library on the RPi.

Benefits

- Don't need to be a mobile app developer
- Minimal code
- Reasonably mature (around since 2014)
- Very quick to create a prototype
- Can publish to App store/Google Play

Similar API & UI for all supported hardware & devices

Connections/ Protocols:

WiFi

Bluetooth and BLE

Ethernet

USB (Serial)

GSM

…

Set of easy-to-use Widgets

Direct pin manipulation with no code writing

Easy to integrate and add new functionality using virtual pins

History data monitoring via SuperChart widget

Device-to-Device communication using Bridge Widget

Sending emails, tweets, push notifications,

Features

Blynk Concepts

- "Pins"
  - You interact (read and write) to Pins, both physical and virtual
  - Allows you to link hardware and devices to your Mobile app
  - Based on Widgets
    - You associate a widget with a pin in Mobile app
    - You use a Blynk library on Hardware device to link
- "Widgets"
  - Drag and Drop components to create your Mobile App
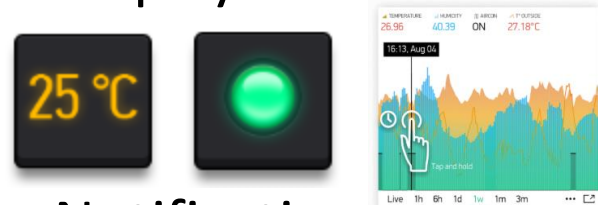
Widgets

- Categorised as:
  - Controllers

  - Display

  - Notifications

- Interface
  - Tabs, Menu, Map..

- Sensors
  - Accelerometer, Light, GPS

- Other
  - Webhook, BLE….

Development Steps

1. Install App on Mobile Device
2. Create a Blynk Account using the app
3. Create a project
4. Choose you hardware
5. Create Project
   1. This will result in an Auth Token sent to your email
6. Code the Hardware Device
   Use the relevant library.

Example

DEMO!!!!!