Develop your UWP App on Win10 IoT

Dong Xu
Partner Enablement Team - Shenzhen
Agenda

- Windows 10 UWP App Overview
- Adaptive UWP App
- UWP Device Apps Development
Windows 10 UWP App Overview
UWP becomes the one platform for developers. Learn **one** set of core APIs for all devices.
Universal Windows Platform
How Windows interacts with you app

- Suspend and resume
- Background execution
- Resource management
- System triggers and notifications
Application Lifetime

Apps can be in 1 of 3 states
- Not Running
- Running
- Suspended

Application receive events when transitioning between states
- Except: Suspended -> NotRunning
Continue a session when not in the foreground

Location Tracking

Save critical data

You just want more time
Background Execution
Background Execution

- Apps provide real-time content even when suspended

Draw users into your app

Delight them with features
Where did we come from?
PLATFORM CONVERGENCE HAS BEEN A JOURNEY

Windows 10

Converged background model
Trigger based Background Tasks

Apps subscribe to triggers they are interested in
Only run *when* trigger is fired

Example:
- Push notification
- Geofencing
- BLE device
- Timer
- Sensors
Triggers

SystemTrigger
TimeTrigger
MaintenanceTrigger
DeviceUseTrigger
DeviceServicingTrigger
PushNotificationTrigger

CachedFileUpdaterTrigger
DeviceConnectionChangeTrigger
GattCharacteristicNotificationTrigger
RfcommConnectionTrigger
LocationTrigger

AppointmentStoreNotificationTrigger
ContactStoreNotificationTrigger
EmailStoreNotificationTrigger
BluetoothLEAdvertisementWatcherTrigger
BluetoothLEAdvertisementPublisherTrigger
DeviceWatcherTrigger
ActivitySensorTrigger
SensorDataThresholdTrigger
ToastNotificationHistoryChangedTrigger
ToastNotificationActionTrigger
ApplicationTrigger
MediaProcessingTrigger
SocketActivityTrigger
Adaptive UWP App
Multiple Adaptive Dimensions

• Version adaptive
  • App runs on a base OS version but can use up-level APIs

• Device family adaptive
  • App uses device family-specific APIs when running on such a device

• Form factor adaptive aka responsive layout
  • App provides user-interface tailored to one or more specific form factors
UWP Device Apps Development
Explosion in application development
Things are the new apps!
Electrical Engineering for SW Engineers

PCle  ➡️  SPI: Higher speed, fewer available
PCI  ➡️  I2C: Lower speed, more available
RS-232  ➡️  GPIO: DIY communication
Raspberry Pi 2
Promise of Context Awareness

Set of facts about users

Reduce explicit interaction, more responsive

Advanced inferences through machine learning

Running, working out
Running, late for a meeting
High altitude biking
Walking, Shopping
Sleeping

In car, Driving, Stopped
Includes APIs to direct access buses
Accessing Buses Directly

• Windows.Devices.I2c
  • Contains types that you can use to communicate with peripheral devices connected through a inter-integrated circuit (I²C) bus from an application.

• Windows.Devices.Gpio
  • Contains types for using general-purpose I/O (GPIO) pins in user mode.
Demo
Calls to Action!

WindowsOnDevices.com

- Learn More
- Watch our YouTube channel
- Download the technology
- Make!
Reference

- Windows 10 HIG [http://design.windows.com](http://design.windows.com)
- Windows Universal Samples [https://github.com/Microsoft/Windows-universal-samples](https://github.com/Microsoft/Windows-universal-samples)
- Windows 10 IOT [http://ms-iot.github.io/content/win10/StartCoding.htm](http://ms-iot.github.io/content/win10/StartCoding.htm)

- //BUILD