# Universal Device Communication Standard

Welcome to a new project that has been started known as the Universal Device Communication Standard. In this document we will give a brief overview of our idea for this standard, what it defines, who will refer to it and why we want to create it.

## 1. Introduction

Today’s technology is rapidly evolving and we have noticed a certain restriction that is slowing down this progression: that is the inability for devices to understand one another. We currently have many protocols in place that allows devices to communicate and it is protocols like this that we want to take advantage of.

The Universal Device Communication Standard (UDCS) is a standard that will define information in a way that electronic devices can understand. It will rely on previous protocols and technologies to work and in this manner it can be implemented easily. Over time, as more companies and products begin to adapt the standard, technology will become more advanced and we believe that engineers and product designers will no longer be restricted in what they can create.

Like all ideas, we have to start from nothing and this is where we are currently: we need help from software developers, engineers and innovators alike to create, implement and manage this standard that we hope can encourage technology to become more advanced.

The UDCS is quite a complicated concept to explain and in this document we hope to outline several case studies and scenarios that will give a clear understanding of what we hope to achieve.

## 2. Communication Protocols

Today’s technology already has several incredibly powerful communication protocols and it would be idiotic to attempt to merge all of these protocols to create yet another. Instead, what we want to do is to utilize these communication protocols as a method to transmit the information that adheres to the UDCS.

### 2.1 Example 1

For our first example, let’s imagine you have just entered a train station. In the future we would be able to pull a device (a phone, a tablet, a laptop) out of our pocket and instantly see the current trains at the station, when they are going to leave and what trains are about to arrive. For now we will keep it simple and avoid adding features that one day we would hope to achieve (eg: a map of the train station and where the user is currently standing etc).

Today this would be perfectly achievable. However, an application would have to be developed for each device/platform, this app would have to be managed and there would have to be a way for the train station to keep this information updated.

Let’s now make this situation a bit more complicated. Let’s say you have a specific train to catch and you booked tickets for this online. You have an email somewhere in your device with all the information you need. It would be ideal if this information would be stored in some form for easy access. No doubt there is currently websites/apps that contain ticket information, booking etc but in the future we expect these two concepts to link together. The user wants to know when their specific train is arriving when they enter the station. The more complicated the users’ requests, the less like that there is an application out there to achieve these things, and this is where the UDCS steps in.

As with we mentioned with current communication protocols, it would be idiotic to attempt to build a set of software and applications that handles everything. This concept will always fail due to competition and people’s preferences.

We now have our scenario but let’s re-imagine it in a world where the UDCS had been implemented. The user enters the train station and user’s device (phone, tablet etc) links to the train station network. Currently we don’t know how to achieve this step but this is an example of the problem that we wish to solve. For argument’s sake we are going assume that the device has automatically connected to the station’s wifi network. Once the device has connected, the train station network will let the device know what information is available. This information will be sent in a format that the device will understand (UDCS has this sorted). On the user’s device is an app called ‘train station’ this app was designed to receive incoming information regarding train stations. It’s an arbitrary app and we expect apps like this to be developed that can deal with a single thing or many things – a personal organiser app for example will have a lot more functions than ‘train station’.

The first thing to note here is that the user does not have to a specific device; it could be any device that has wifi built in. The user doesn’t even have to have a specific app since the information has arrived via wifi and is in a certain format. The format (UDCS) is universal and so absolutely anyone can create an app to understand it.

‘Train station’ has been programmed to wait for incoming wifi connections that have adopted the UDCS and carry information about train stations. Now that it has received this information it could notify the user in whatever way the manufacturer has designed the device and the user can now receive any information that the train station wants to give.

On the user’s device is another application that deals with train bookings. The information from this app is stored on the user’s device in a local area that all apps can access. It has been formatted using the UDCS and contains all the user’s train bookings. ‘train station’ can access this file and read it since it knows what it’s looking for, it can then parse this information however it decides. Since it’s our arbitrary app we are going to make it tell the user which platform to look for and when their train is going to leave.

Hopefully this example has given a clear outline of what the UDCS hopes to achieve. There are several factors that we must take into account in order for all of this to work:

* The device needs to have an area that all applications can access, allowing applications to communicate with one another
* The device has to connect to networks automatically
* The device has to be able to accept information from these networks

It is issues like this that need to be addressed to allow the whole system to work.

We are now going to break this whole scenario down into a number of diagrams that will explain the concept of the UDCS.