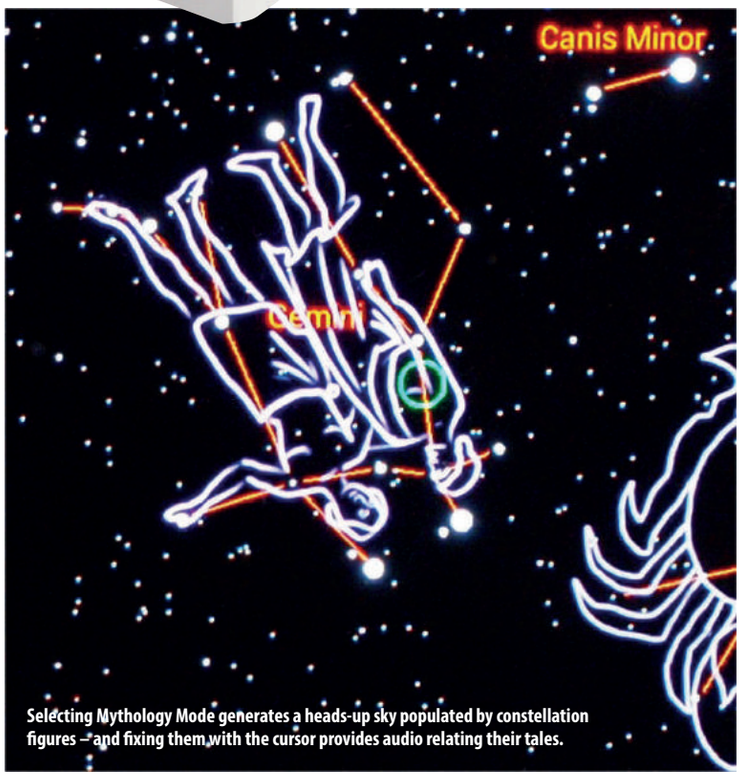
Universe2Go

It looks like a prop from an episode of Star Trek, but it's actually a new virtual reality tool for finding your way around the night sky and it uses the smartphone you probably already have in your pocket. **Steve Ringwood** beams down his review.

In the box. The Universe2Go viewer, neck strap, soft case and user guide.



Selecting Mythology Mode generates a heads-up sky populated by constellation figures – and fixing them with the cursor provides audio relating their tales.

The viewer's portal onto the sky, showing the 45° screen that facilitates the heads-up display – and the twin mirrors that focus it.

There is an episode of *Star Trek (*The Changling*)* in which the crew of the Enterprise are endangered by a device that proves to be the fiendish technical collision of an old Earth probe and a alien disinfector. That machine was brought to mind as I began my review of the Universe2Go, an amazing blend of smartphone, stereoscope and planetarium. The resulting fusion is an incredible concept that becomes a dynamic multifunction guide to the sky.

Universe2Go rides on two sets of software. The first, Starmap, acts alone on your smartphone to deliver a dynamic depiction of the sky towards which it is directed – providing cursor-driven identification and guide functions. Thus far, it has a resemblance to many smartphone star maps. The conceptual leap occurs when Universe2Go is used in its main mode, called Planetarium. With your smartphone inserted into the Universe2Go 'light box', an astonishing partnership is forged.

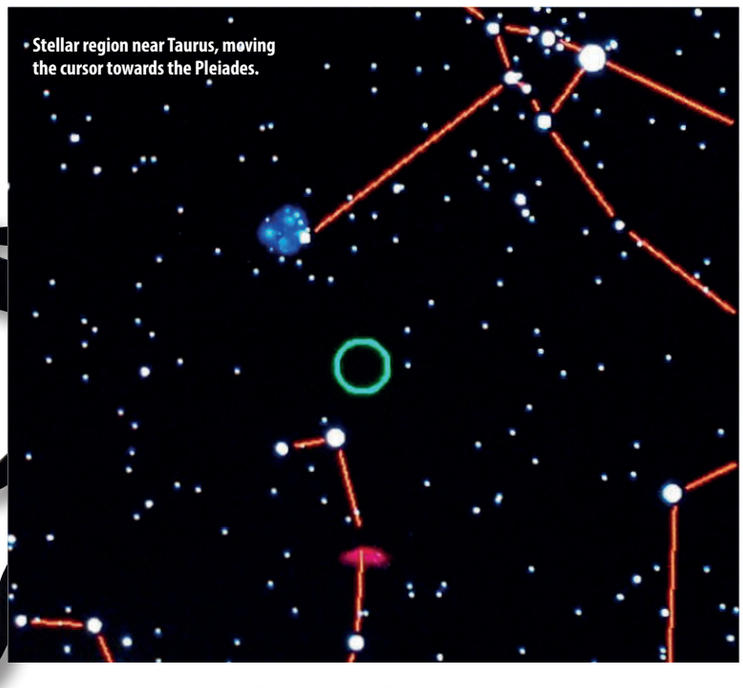
The light box contains a 45° clear reflector and twin mirrored optics, making the smartphone's screen visible simultaneously to the view through the unit's front opening. Thus, the device facilitates a heads-up display – with overlaid imagery supplied by the smartphone. This ingenuity has a real scientific beauty in its conception.

But first, I loaded my Samsung S3 with the software (currently about 250MB) – available from either Google Play (Android) or App Store (iOS). Once loaded, it is time to mate your smartphone with the Universe2Go unit. The smartphone sits face down on the clear panel 'roof' of the device, the foam rubber surround of which you pre-tailor to snugly receive your particular model. A light-tight lid then encloses the smartphone to complete the installation. After some simple calibration routines, the magic begins.

The smartphone's star map, supplied as twin images, is reflected by the device into a stereoscopic superposition onto the sky, given guidance by the smartphone's orientation facilities. In the centre of the star map floats a small green circle that when placed over a target, generates heads-up information and occasionally even an audio description.

The software offers a number of operating states. When the device is turned towards a constellation, Beginner Mode initiates an audio summary that includes perhaps its historical origins, major stars and objects of interest contained within its boundaries. This mode is a great starter for a new user to become

After adjustment of a pre-prepared stencil, your smartphone sits face down into the transparent 'roof' of the viewer. A foam lid then closes over it to keep it light-tight.



Stellar region near Taurus, moving the cursor towards the Pleiades.

familiar with the software and device. I suspect, however, that Discovery and Search are the modes that will be employed most.

Discovery

Discovery is a wonderful way to explore the sky. As you scan the sky with Universe2Go, holding the cursor circle over a star initiates the generation of an adjoining text description. Although this oddly lacks the object's magnitude, it provides (for example) its classification [red giant], name [Arcturus], light distance [37 years], its mass (× solar) [20] and the minimum level of sky darkness required for observation [city].

But that is not all! Holding the cursor steady on brighter objects for a couple of seconds initiates an audio description that provides further information. Aiming at planets also produces a stunning expanded image as you listen to the science. A similar mode, called Deep Sky, adds galaxies, nebulae and comets to the display – and alighting on these also prompts further information.

The viewer comes with a pre-cut frame that can be customised to grip your specific smartphone firmly and safely.

Yet the most exciting functionality for me was to use Discovery mode with star brightness set to zero (although I left the constellation lines displayed). This meant that with the virtual stars banished, the real stars became the map. Capturing them in the cursor initiated the descriptive processes as before – but with the star representing itself! For me this made it a perfect guide to the sky.

Search

In keeping with the multifunctional nature of this device, it is possible to use it to locate objects of interest. Choosing them from the Search Mode menu produces a yellow bull's-eye pierced by a radial line that points towards the object. All denizens of the night sky can be located in this way – be they stars, planets, deep sky objects and even satellites. In fact, I actually caught the ISS crossing my Universe2Go field which I then located visually – it might otherwise have passed over me unnoticed.

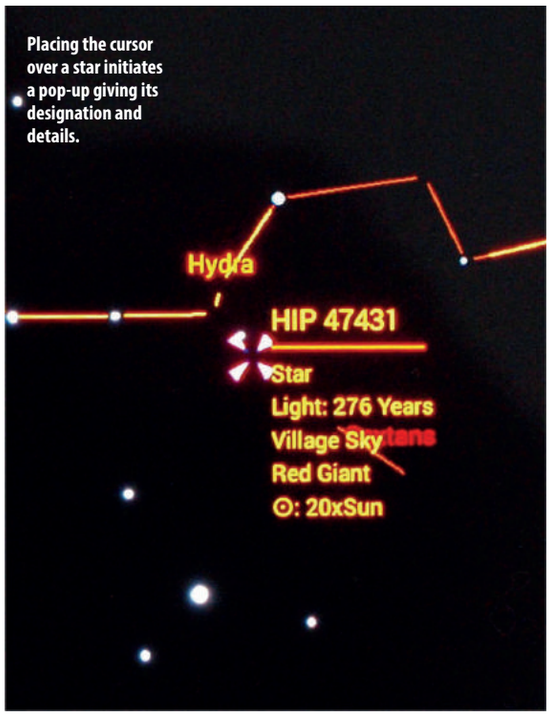
You might reasonably ask, with the smartphone firmly encased beyond physical contact, how it is possible to communicate with the software. Ingeniously, this is mediated entirely by the smartphone's motion sensors. Whilst looking through the Universe2Go, you tip your head this way and that to impart your instructions and track through the various menu systems (via a floaty pointy finger). This took a little getting used to initially, but became much easier with practice. I do, however, foresee some very strange sights at skycamps with multiple users presenting a sea of bobbing heads, like sunflowers in a breeze.

As with all applications that employ a smartphone's gyros and accelerometers, the accuracy and performance of the software can be adversely affected if these mechanisms do not perform to the highest specification. Those on board my (now ageing) S3 imparted a few jitters to the otherwise excellent performance of the software, but it was still entirely usable and enjoyable; the software also includes a star calibration routine that tackles alignment problems.

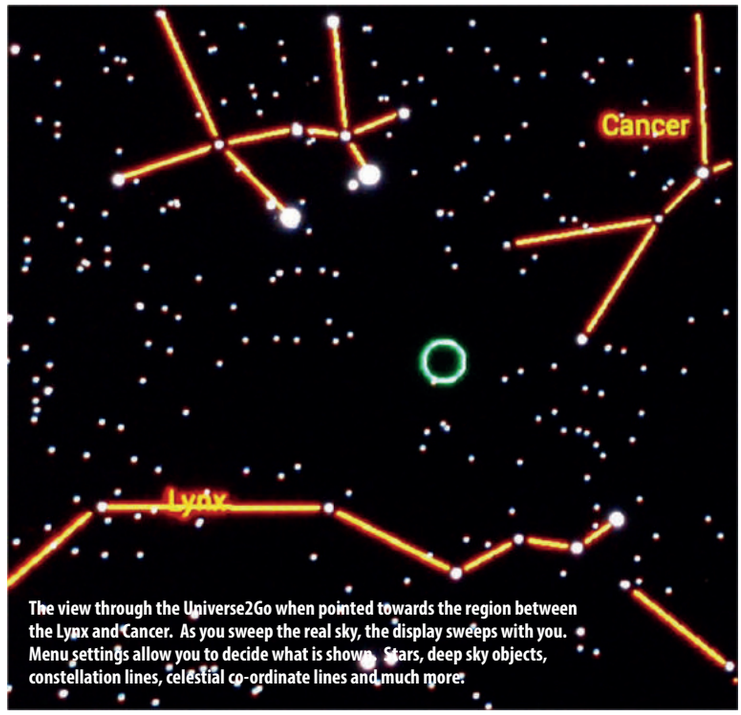
The Universe2Go is quite untiring; the unit itself is very light (250 grams) and with the addition of only your smartphone's mass, does not compare with spinning around the sky with a chunky pair of binoculars.

Other Modes

Those who enjoy the romance of the stars can enter Mythology Mode. With graphic representations writ large against the stars, pinioning a constellation name with the cursor relates the stories behind these most ancient figures in the heavens.



Placing the cursor over a star initiates a pop-up giving its designation and details.



The view through the Universe2Go when pointed towards the region between the Lynx and Cancer. As you sweep the real sky, the display sweeps with you. Menu settings allow you to decide what is shown. Stars, deep sky objects, constellation lines, celestial co-ordinate lines and much more.

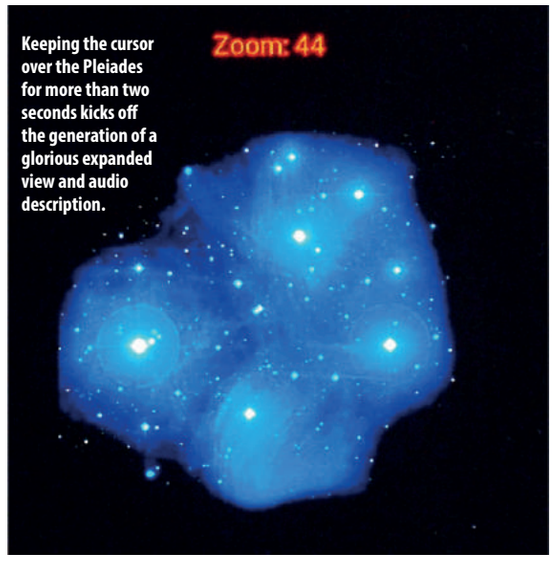
3-D Mode is nothing less than startling. The full force of the device's stereoscopic ability is brought to bear, in that the constellations float free in space, lifted above a star-tossed blanket of distant fainter stars. Not quite dizzying, but impressive none the less.

The excellent audio descriptions are voiced by a charming American woman who occasionally made me smile with some distinctly transatlantic pronunciations. For instance, it would seem that our less prudish American cousins are still calling our seventh planet 'Yer – ay - nus', although no worse than the pronunciation that infers it is composed primarily of urine! In passing, I also noted that the Crab Nebula was introduced as the M1, rather than as simply M1, although its resemblance to an English motorway is lost on me. Perhaps incorrectly, I got the impression the narrator was not herself an astronomer. But if the lady becomes too chatty, you can turn her off by simply giving her a shake!

Within the Settings menu, there is a wealth of customisation possible, dealing with such items as adjusting brightness and sound levels, switching the display of object classes on or off and much more besides.

I found Universe2Go an excellent guide to the sky – informative and fun in equal measure. Those at all levels of experience in astronomy will find this useful – and perhaps in time, essential. For those whose overuse of GoTo systems has dulled their familiarity with the wider sky this is an ideal device for reconnecting. It is definitely the next leap in the evolution of interactive sky map devices. Development of the software continues, so I can see Universe2Go only getting better.

Steve Ringwood is Astronomy Now's *Equipment Consultant.*



Keeping the cursor over the Pleiades for more than two seconds kicks off the generation of a glorious expanded view and audio description.

The viewer seen from the user side. The Universe software incorporates a set-up routine that enables adaptation of the heads-up display to your inter-pupillary distance.

At a glance

In the box:
Universe2Go device, strap and soft case.
Minimum Software requirements:
Android 4.2, iOS 7.0
Maximum smartphone dimensions:
147mm x 74mm x 11mm
Compatible smartphones
iPhone 4, 5 & 6; Samsung Galaxy S3, S4, S5 & 6