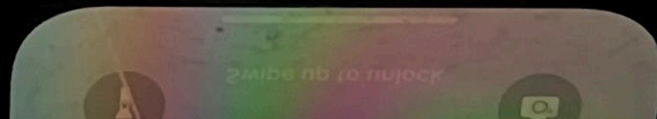


Kishi Sitthirajvongsa & Purnata Hassan

Save Our Souls Apple!

All about Apple's new Emergency SOS via Satellite and Crash Detection.



Save Our Souls Apple!

Kishi Sitthirajvongsa & Purnata Hassan

The Apple event on September 9th 2022, introduced the new, emerging iPhone 14. In this latest device, Apple introduced the most notably advanced and latest features: Emergency SOS via satellite and Crash Detection. According to research in the International Journal of Advanced Computer Science and Applications (2016), it states that from 2014-2015, "60% of young owners use their smartphones as an instrument for emergency circumstances". Accordingly, with Apple's Emergency SOS via satellite and Crash Detection, it becomes a revolutionary device for those in need.

In places where cell towers cannot reach such as mountains or extremely deserted areas, connectivity to satellite is an option Apple has offered, enabled by its new advanced A16 bionic chip. There are many steps as to ending an emergency message through satellites as it is a new form of communication in smartphones. To connect to satellite phones need to use narrower bands the message will

then be transferred to the satellite and sent back to the ground station then finally be passed on to emergency services. Due to its limiting nature, Apple has arranged a set of pre-made questionnaires and presets of answers for users to choose from for their emergency situations. Apple has also reduced the size of the texts by a third to ensure users are able to connect to services as fast as possible. Apple has set up local relay centres that will be able to receive and pass on the message to emergency services on behalf of the user.

Emergency SOS via satellite is still a complicated method of communication. Using satellites to send emergency texts can vary in experience due to the environment the user is in. In places with heavy foliage or being indoors/underground, texts may require fifteen seconds to a minute to send. Depending on the length of the texts it may not send at all due to poor connection to the satellite. The system is unable to support some parts of the



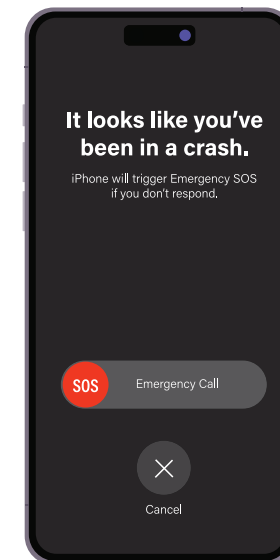
world, such as mainland China, Hong Kong, and Macao as well as extreme northern territories.

A journal article proposed at a conference in Seattle, Washington, back in 2016 evaluates how car crashes are the leading causes of death. They believed that utilising an automated system that detects crash accidents with smartphone sensors would be a “cheaper alternative to expensive in-vehicle accident detection systems”, by using the sensor hardware already found in smartphones, such as a GPS receiver, accelerometer etc. (Sharma et al., 2016). Apple has taken account of this necessity and enabled this possibility. The crash detection feature in the new iPhone 14 has the ability to detect any severe car crashes using sensors and sound. Both integrated into the new Apple Watch Series and the iPhone 14 models, Apple has introduced hardware equipped with gyroscopes with a high-dynamic range, dual-core accelerometers and microphone sensory data, allowing devices

to easily detect a car crash and quickly notify emergency operators (Prakash, 2022). During a crash, an Emergency call slider will display on the iPhone, which is read aloud, if in any case the individuals cannot see. If the call is not answered, it will send 20 seconds of aggressive vibrations before playing a looping audio message from Siri to an emergency operator. This message will replay every 5-second intervals. After the first interval, the volume will reduce so that the user or the operator may speak. It may also be paused. Furthermore, if users have added emergency contacts, it enables the device to share the location of the crash with the operator, sharing both the latitude and longitude, as well as a search radius. In addition, if the user has set up their Medical ID on the device, the digital medical ID would allow emergency responders to have access to the user’s medical information.

Apple’s introduction of the crash detection and emergency SOS via satellite features

in iPhone 14 is a revolutionary addition for its users. Allowing its users to connect to emergency services through satellite is a new form of communication however it also means the process is limited and complicated. Crash detection enables users to instantly connect with emergency operators, conscious or not. Apple’s ground-breaking emergency considerations for users allows lives to be saved.



References:

Apple. (2022, September 12). *Use Crash Detection on iPhone or Apple Watch to call for help in an accident.* <https://support.apple.com/en-us/HT213225>
Apple. (2022, September 08). *Use Emergency SOS via satellite on your iPhone 14.* <https://support.apple.com/en-us/HT213426>
Maryam, H., Qaisar, J., Shah, M., Kamran, M. (2016). A Survey on Smartphones Systems for Emergency Management (SPSEM). *International Journal of Advanced Computer Science and*

Applications. <https://pdfs.semanticscholar.org/40e9/4d11364bc407c52147e7529cf7e0f1d4b427.pdf>
Prakash, S. (2022, September 13). *iPhone 14 Emergency SOS via satellite — how it works and how it could save your life.* *Tom’s Guide.* <https://www.tomsguide.com/news/iphone-14-emergency-sos-via-satellite-how-it-works-and-how-it-could-save-your-life>
Sharma, H., Reddy, R., Karthik, A., (2016, December 29). S-CarCrash: Real-time crash detection analysis and emergency alert using smartphone. *IEEE Xplore.* <https://ieeexplore.ieee.org/abstract/document/7800181>

Apple Emergency SOS via Satellite

