

## Navigation System For Obstructed Signals

**R**esearchers at the University of South Florida have invented a system and method of manipulating device positioning systems to reduce the impact of harsh GPS environments on device battery life when the device is located at an obstructed location. This invention can apply to other positioning systems that rely on wireless signals as well, including Wi-Fi-based, ultrawide-band based, Bluetooth-based, cell signal-based, etc.

Battery life is a key problem in today's location-based services, since calculating the position of a device using a technology like GPS uses hardware in the device, which quickly drains the battery. This makes mobile applications like high-resolution tracking apps difficult to implement, since a high position refresh rate is needed.

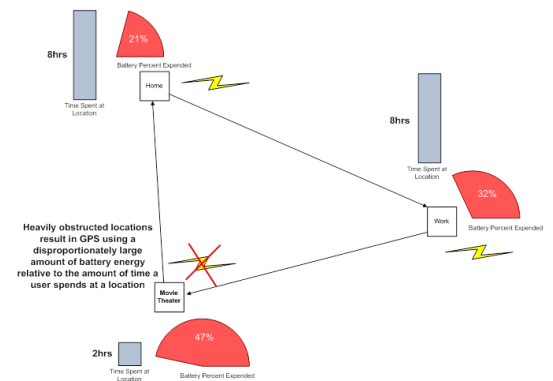
Also, construction materials used in certain buildings (e.g., concrete block walls) can prevent GPS signals from penetrating the building, resulting in devices struggling to acquire a GPS fix in these locations. If software isn't adjusted to compensate for these obstructed locations, mobile tracking applications will use a significant amount of battery life when a user is at these locations, potentially rendering the mobile device useless.

USF inventors have invented a system and method of manipulating device positioning systems settings based on historical data that is collected on the mobile device over time as well as real-time data, which are used to identify locations which may have harsh GPS environments (i.e., obstructed locations) and changing device positioning recalculation frequency settings (e.g., interval between position requests) to reduce the impact of these harsh GPS environments on device battery life when the device is located at an obstructed location.

### ADVANTAGES:

- **Decreases battery consumption substantially**
- **Can be easily adjusted to any obstructed locations**
- **Intelligent mobile software identifies when user is at different location**

### Extend Battery Life in Harsh GPS Environments



### Percentage of battery used per location during daily travel