

## Abstract:

Crab Island is a sand bar used for recreation by tourist. Crab Island's occupancy consist of locally owned boats, rental boats and chartered excursions. Concession vendors navigate small watercraft to conduct sales among the sandbar. The vendors communicate with the captains via VHF radio on channel 63 to handle request made by tourist among the chartered excursions.

## Problem Statement:

Upon conducting an analysis of productivity and adversing effectiveness, a few problems exist that can be broken down into 2 categories. The results are based upon visual monitoring of the vendors and VHF radio monitoring.

The first issue is that tourist are unaware of what products are available. Their saturation is based upon what they can see around them at the time of arrival and what vendors physically pass by them during the duration of their visit. This model defines how the vendors advertise.

The second issue is the lack of geolocation tools as in there are no reference structures to aid in geolocation. Captains make request via VHF radio for a specific vendor and the vendor responds. Location information is exchanged between both parties but it cannot be assumed accurate therefor a massive delay in delivery time is observed. It can almost be comparable to describing to someone a single star in a sky full of stars. This defines how effective vendors are at delivering.

## Solution Statement:

The proposed solution consist of next gen software development tailored to this specific application. The application will work as the following. Stickers with QR codes are to be placed in all rental and chartered vessels. Customers scan the QR with their mobile devices and then are redirected to Crab Island Concessions website. There they can brows all products offered by the vendors and see vendor availability per daily basis. Product containers inside the website are managed by each vendor via credentialed accounts. This greatly improves the advertising potential issue discussed earlier.

The second benefit offered with this software are geolocation tools. Mobile devices have GPS and cellular triangulation capabilities that can be utilized for assisting vendors. Customer location data will be shared to the vendor's account. The vendors account would display a map and a compass to assist in navigating to the customer of which submitted the request. This would reduce delay time, aid in navigation, create a first-order-first-served option and also assist medical personnel locate a distress signal option if provided with software.