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RSA SMART ARM TRAILER AND MOBILE OFFICE

PRODUCT SUMMARY

YOUTUBE VIDEO: <https://youtu.be/lk79jgK5uXA>

PRODUCT

The RSA Smart Arm is a new innovative mobile trailer that allows for the remote controlling and monitoring of roadway traffic in areas affected by accidents, construction activities, weather conditions, large scale temporary events, or the notification of Amber alerts.

Traffic regulation is accomplished through the use of a 10 foot horizontally swinging gate with a series of preprogrammed colored high intensity LED lights.

The Smart Arm may be operated by either on-site Flaggers or through remote monitoring and controlling utilizing built in 360-degree cameras and wireless transmission to any internet connected device including computers, tablets or smart phones.

Flagger safety is enhanced as the 4' x 20' trailer, situated in the roadway shoulder with its control box mounted on the safe side, protects the Flagger from oncoming traffic.

With its ability to be towed behind a medium size truck, the Smart Arm can be brought onto improved or unimproved roads or work sites and can be setup and operated quickly by a single person.

Long term remote operation is achieved through Smart Arm integrated battery and solar panel recharging power system.

PRODUCT SUMMARY

The 4' x 20' trailer has been designed, fabricated and tested to primarily save the life of a Flagger. The narrow width design of the trailer allows the unit to be parked on the shoulder of any roadway.

An integrated STOP/SLOW sign, with both Red and Amber colored high intensity LED lights mounted on top of the trailer's motor box rotates 180 degrees with the chosen light pattern on the arm. The speed of the arm's open/close is relatively quick, around 5 seconds. This is a comfortable rate allowing one vehicle at a time to pass through, enhancing the viability of the invention, as the Flagger holds vehicles for longer time periods.

MAST SYSTEM

A 14' tall mast lays flat during travel and is manually raised for operations. At the top of the mast an outdoor rated box has a dual wireless transceiver that supports video, data, voice and text to and from the trailer. The four sides of the mast box have Red/Blue high intensity LED lights which act as a beacon and four high intensity LED white flood lights. These illuminate the trailer for nighttime operations. Below the mast box are two 360 deg cameras which can be monitored and operated remotely.

Accompanying the mast cameras is a third camera, positioned at the rear of the trailer facing forward viewing the light patterns being illuminated on both the Arm and the Stop/Slow sign. This confirms the chosen pattern that has been selected.

In addition, a loudspeaker horn with microphone can communicate two-way with the remote operator and people at the site.

CONTROL BOX

The Control Box has a waterproof panel mounted in a NEMA 4 box with push buttons that controls Arm operations. Additional colored push buttons control the light color and pattern on the Arm and Stop/Slow sign. The lights range from RED to Left Amber Arrows, Right Amber Arrows and Cross Amber Arrows. Additional push buttons control the Blue/Red Beacon and White Flood Lights. The Control Box has an On/Off switch and means to read the internal PLC Data through a USB port.

POWER SYSTEM

The Power system has been designed through the combination of batteries and solar panels to work indefinitely in the field without any additional power costs. The trailer utilizes six large Gel batteries (225 Ahr) and four solar panels. Working six days/week for 12 hours/day averages a current demand of 6 amps. The battery set alone will last for approximately 14 days being charged from 90% to 50%. The solar panels (total 580 Watts) have been calculated at 25% efficiency generating power in Southern California for 8 hours per day, 7 days/week less 10% efficiency (laying flat). The Kwh/week from the solar set generates more power than the demand keeping the system running indefinitely. The system also has a switch moving between solar panel input to 120V power to charge the batteries if required after storage.

ARM EXTENSION

The current length of the Arm is 10'. A typical traffic lane is 12' wide leaving 2' of safety from on-coming traffic. To extend the length of the arm from 10' to 20', a second 10' section is attached to the end of the first and hinged back so the

travel length is still 10'. This change out can be made by removing 4 bolts from the pivot point at the motor box and replacing the first arm with a double length arm.

ARM RECOVERY IF STRUCK

Inside the Motor Box is a spring-loaded safety latch which will hold the Arm closed if struck by a vehicle in either direction. This prevents the Arm from swinging back into traffic. The safety latch can be manually or electronically released, resetting the Arm for use. Two shock absorbers mounted on the forward end of the trailer capture the struck arm to dissipate the energy of the moving Arm. The system has been tested up to a 20-mph strike without damaging either the Arm or the integral lights.

SECURITY

A full set of specially configured locking security covers for the Mast Box, Two 360 degree Cameras, rear Camera, Joint of the Mast (in the stowed and operating positions) and the STOP/SLOW sign accompany the trailer. These items all fit inside a storage box mounted on the trailer. In addition, secured locking steel straps secure the two battery boxes, storage box, and Control Panel. Padlocks secure the solar panel assemblies. The Smart Arm also has an integral battery powered GPS Tracking system which detects movement of the trailer beyond a stated radius. The tracker sends an e-mail to the owner who then can forward the data to the authorities to locate and recover the trailer. The GPS Tracking system has an integral battery to transmit even if the trailer's power is compromised.

TRAILER SPECIFICATIONS

The trailer weighs approximately 3,800 lbs. equipped electric brakes and all requisite lighting. The trailer has a VIN number, California license plate and is insured.

ADVANCED CONFIGURATIONS

Camera Options:

More advanced configurations of the system have eye level cameras with on-site data logging capabilities to capture on-coming and out-going traffic along with license plate reading/capturing software.

REMOTE MOBILE OFFICE OPTIONS

The Smart Arm can serve as a mobile construction office. Further advanced configurations allow two-way video/voice/data communications from a site supervisor to the Smart Arm. With this configuration the supervisor does not need to leave their office. Recorded video and job documentation can be office recorded, downloaded and viewed by personnel at the trailer. In addition, an 11" x 17" on-board printer can print and scan-return documents from the site to the supervisor. Multiple senders can monitor and control the system for live group meetings.

DRONE OPTIONS

In addition, an integrated flying Drone may be connected to the system. The Drone can fly a memory pattern which will update the progress of the job site or be used to aerially show the group the current status around the trailer.

MANUFACTURE AND PATENTS

The Smart Arm Trailer is fully manufactured in the U.S. and is Patent Pending.

The RSA Smart Arm is currently located in Rialto, California and can be towed anywhere for review.