DRISI

Caltrans Division of Research, Innovation and System Information

Research Results

Tablet Applications For Field Element Configuration And Diagnostics

Field personnel can quickly and efficiently troubleshoot and configure multiple field element devices using tablets with a suite of applications

Rural

NOVEMBER 2019

Project Title:
Hand-Held Diagnostic Controller For ITS Field Maintenance Phase II

Task Number: 3182

Completion Date: September 30, 2019

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WHAT IS THE NEED?

The California Department of Transportation (Caltrans) has a wide variety of traffic operations field element devices that must be managed and maintained. This includes closed-circuit TV (CCTV) cameras, changeable message signs (CMS), vehicle detection systems, and road weather information systems.

To maintain and configure these devices, personnel currently use laptops, which presents a large end-user burden. Caltrans' Division of Maintenance and Division of Research, Innovation and System Information have identified the need for a ruggedized handheld diagnostic controller (HHDC) to manage and maintain field element devices. Caltrans needs an HHDC kit including applications (apps) for CCTV and CMS diagnostics and control.

WHAT WAS OUR GOAL?

The primary purpose of this research was to complete the CCTV and CMS tablet apps, as well as develop a portable hardware kit containing the HHDC and the miscellaneous piece – parts necessary to support the apps.

WHAT DID WE DO?

- A technical advisory group (TAG) was established early in the project, and regular meetings were held with the Project Manager (PM) and/or the TAG.
- Advanced Highway Maintenance and Construction Technology and the PM worked collaboratively during the research to best guide the effort.
- The work completed the development of the HHDC, supported testing of HHDC use in Caltrans operations,

and revised the HHDC based on Caltrans' feedback.
- Iterative HHDC development followed by support for HHDC alpha testing, followed by feedback to the researchers which then prompted another development cycle.

WHAT WAS THE OUTCOME?

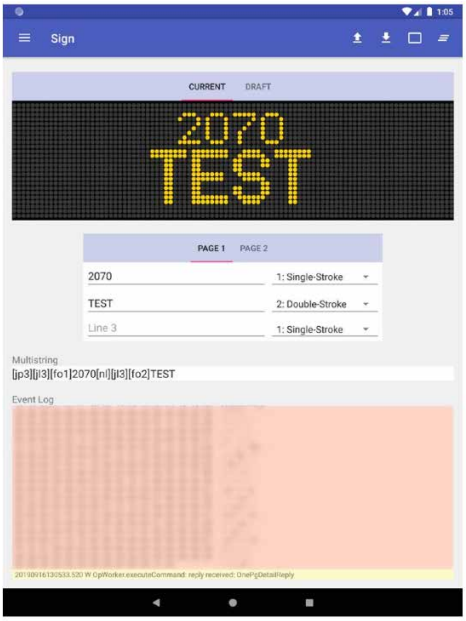
The efforts, results, and system were documented throughout the research project, culminating in a final report and eight HHDC kits to be distributed to the rural Districts.

WHAT IS THE BENEFIT?

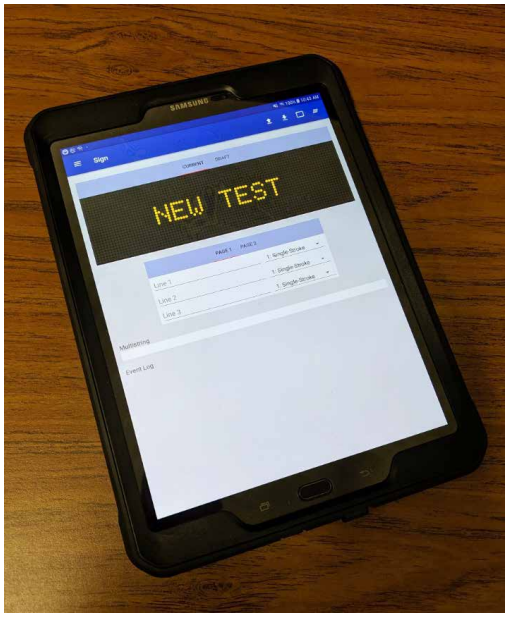
The HHDC gives Caltrans field personnel a ruggedized, robust system to deal with the specific task of maintaining and configuring traffic operations field elements. This enables employees to get their work done faster, safer, and with dramatically reduced chances for loss of potentially expensive equipment.

IMAGES

Picture 1: Hand Held Controller Kit



Picture 2: Changeable Message Sign Application



Picture 3: Hand Held Controller Tablet