1. REPORT DATE **2011**	2. REPORT TYPE	3. DATES COVERED **00-00-2011 to 00-00-2011**

4. TITLE AND SUBTITLE **Army develops smart phone framework, applications for battlefield operations**	5a. CONTRACT NUMBER
	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **U.S. Army Signal Center,ATTN: ATZH-POM (Army Communicator),Bldg 29808A (Signal Towers), Room 713,Fort Gordon,GA,30905**	8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT **unclassified**	b. ABSTRACT **unclassified**	c. THIS PAGE **unclassified**	**Same as Report (SAR)**	**2**	

Army develops smart phone framework, applications for battlefield operations

By Claire Heininger

Leading his team of paratroopers en route to capturing a high-value target, SPC Hao Bui encountered obstacles - enemies, streets, roadside bombs.

He pulled a smart phone from his uniform and entered the information into an app, immediately transmitting warning graphics to his buddies and higher headquarters.

"If we see an enemy up front, we could put it in the GPS system," said SPC Bui, a member of the 3rd Brigade Combat Team of the 82nd Airborne Division. "Even though they (fellow

GEN Peter Chiarelli, Army vice chief of staff, views a photo downloaded on a prototype JBC-P Handheld smart phone. GEN Chiarelli attended a recent field exercise at Fort Bragg, N.C., where Paratroopers from the 3rd Brigade Combat Team of the 82nd Airborne Division experimented with the JBC-P Handheld prototype, the first developed under an Army effort to devise an Android-based smart phone framework and suite of applications for tactical operations.

Soldiers) can't see it, you can mark it for them."

The device, known as a Joint Battle Command-Platform, or JBC-P Handheld, is the first developed under an Army effort to devise an Android-based smart phone framework and suite of applications for tactical operations. The government-owned framework, known as Mobile / Handheld Computing Environment, or CE, ensures that regardless of who develops them, applications will be secure and interoperable with existing mission command systems so information flows seamlessly across all echelons of the force.

This framework, originally prototyped by MITRE, is now being developed at the Software Engineering Directorate in Huntsville, Ala., with the JBC-P family of systems and is aligned with the assistant secretary of the Army for acquisition, Logistics and Technology Common Operating Environment, or COE strategy.

"Using the Mobile /Handheld CE Product Developers Kit, we're going to allow the third-party developers to actually develop capabilities that aren't stove piped," said LTC Mark Daniels, product manager for JBC-P. JBC-P, which will be fielded to both the Army and the Marine Corps beginning in fiscal year 2013, is the follow-on program of record for Force XXI Battle Command Brigade and Below/Blue Force Tracking, or FBCB2/BFT.

"That's going to allow us to be interoperable across the entire family of systems of JBC-P, which would include the platforms, the aviation, the logistics community, the tanks, the Bradleys, the handhelds," LTC Daniels said.

The Mobile /Handheld CE development kit will be released to industry in July, he said. In the interim

the Army is refining the Mission Command Apps, which will include mapping, blue force tracking, Tactical Ground Reporting, or TIGR tactical graphics and critical messaging (such as SPOT reports, Medevac and Mayday) between all mission command systems. The baseline suite of applications will also include supporting apps like an address book and Open Office for document viewing.

"It's like when you get an iPhone and you have the Apple-made apps: the contacts, the e-mail," said J. Tyler Barton, an engineer with one of the Army organizations designing apps, the Research, Development and Engineering Command's communications-electronics center Command and Control Directorate. "Then other applications are free to use those apps, or to go above and beyond that."

Allowing industry to freely develop apps within a government-led software environment means the Army can leverage fresh ideas and technology while still maintaining "disciplined" governance, LTC Daniels said.

"All of the research dollars are out there in the commercial market. All of the best minds are at work in these companies to produce these smart phones and this software," Daniels said. "We don't want to rehash that, we want to leverage it. We want to take advantage of it and get it out to the Soldier in a structured fashion, so it can be implemented in a way that is secure and useful at the same time."

For the JBC-P Handheld smart phones themselves, the Army is currently evaluating prototypes to determine whether to use a government-off-the-shelf model or a commercial-off-the-shelf model in a ruggedized tactical sleeve or

case. However, the software is being designed so it can run on a variety of different Android platforms.

"We're trying to set this program up so that it can rapidly adapt and maintain relevance to the current warfighting generation," LTC Daniels said.

That flexibility also extends to communications. The JBC-P Handhelds will work over different types of radio networks, including the Joint Tactical Radio System, or JTRS Soldier Radio Waveform, Netted Iridium, and Marine Corps radios such as the PRC 117G and PRC 152A. Even when connected to a radio, the lightweight system weighs approximately two pounds.

Soldiers from the 2nd Brigade, 1st Armored Division will try out the handhelds and JBC-P software during the Network Integration Rehearsal at White Sands Missile Range, N.M., in October. The Network Integration Rehearsal is part of a series of four events leading to executing a fully integrated Brigade Combat Team Network Evaluation at the end of 2012.

For dismounted Soldiers like SPC Bui, the software approach consistent with modern day commercial technology will also provide a consistent, easy-to-use experience. They will be able to choose different Mission Command applications for their specific mission needs without intensive training.

"I was just shown a quick, little, five-minute brief on it - that's all it took and we were ready to use them," said SPC Randy Fite, who like SPC Bui experimented with the JBC-P Handheld prototype during a recent training exercise at Fort Bragg, N.C. He said the app's blue icons indicating the GPS locations of his fellow Soldiers helped them navigate and coordinate actions during the capture.

"We can know where each unit is in our platoon, and how they're moving," SPC Fite said. "It makes the job a lot easier."

Claire Heininger is a staff writer for Symbolic Systems, Inc., supporting the Army's Program Executive Office Command, Control and Communications-Tactical. She is a graduate of the University of Notre Dame and a former Statehouse reporter for The Star-Ledger, New Jersey's largest newspaper.

Photo by Ashley Blumenfeld

Paratroopers from the 3rd Brigade Combat Team of the 82nd Airborne Division use radios and smart phones to communicate during a recent field exercise at Fort Bragg, N.C.