



**University of Central Florida**  
Department of Applied Research and Technology  
3280 Progress Drive, Orlando, FL 32826  
(407) 882 – 1350 / [www.ist.ucf.edu](http://www.ist.ucf.edu)

## **AD-HOC ROBOTIC TESTBED (ART)**

The goal of this project is to develop low cost mobile platforms for Army Tactical Engagement Simulation training exercises for Research Development Engineering Command. The desire for this particular application is to have humans control portable, yet highly mobile robots using intuitive GUIs that allow freedom of movement and sight for the user. In addition to this demand is the ability for human and robot to exist as nodes on the same wireless network for intelligent packet routing.

We are currently building and developing very portable (easily fitted into a medium size carry-on luggage) platforms to coexist on a wireless network. The platforms sport four wheel drive and four wheel steering making it an extremely dexterous platform for navigation in the field. They also have enough speed to maintain pace with a human in the field. Onboard these platforms are the MAR protocol from Intelligent Automation Incorporated which has been a critical component in the packet routing requirement of these platforms. Each human and robot with wireless capabilities acts as node on the network. With this setup, packets may be routed based on shortest distance or other desired criteria. GPS coordinates will also be incorporated to this design scheme to map the available nodes to an absolute positioning for a command station.

We are also developing the user interface to control these robots. For processing power

combined with ease of use, we have designed the interface to function on a tablet PC using the Java Virtual Machine. The interface captures a full range of speed while allowing for a complete full range of turning, and is able to interface with a four wheel steering platform or a differential steering platform.

### **ART Working Prototype**



For more information regarding ART, please contact:

Ravi Palaniappan  
Principal Investigator  
[rpalania@ist.ucf.edu](mailto:rpalania@ist.ucf.edu)  
(407) 882 – 1350

Art Cortes  
Director/DART  
(407) 882 – 1337  
[cortes@ist.ucf.edu](mailto:cortes@ist.ucf.edu)