

Report Information

Award Type	Award Number	Prime DUNS	Calendar Year / Quarter	Final Report
Grant	0855182	066470972	2011 / 1	No

Award Recipient Information

Recipient DUNS Number 066470972	Recipient Address 1 107 SAMFORD HALL
Recipient Account Number 219038	Recipient Address 2
Recipient Congressional District 02	Recipient City AUBURN
Parent DUNS Number 066470972	Recipient State AL
Recipient Type 2U.G6.M8.OH.VW	Recipient ZIP Code + 4 368490001
Recipient Legal Name AUBURN UNIVERSITY	Recipient Country USA
Recipient DBA Name	

Project / Award Information

Funding Agency Code 4900	Total Number of Sub Awards less than \$25,000/award 0
Awarding Agency Code 4900	Total Amount Sub Awards less than \$25,000/award 0.00
Program Source (TAS) Code 49-0101	Total Number of Sub Awards to 0 Individuals
Sub Account Number for Program Source	Total Amount of Sub Awards to 0.00 Individuals
CFDA Number 47.082	Total Number of Payments to 14 Vendors less than \$25,000/award
Amount of Award 189284.00	Total Amount of Payments to 879.65 Vendors less than \$25,000/award
Award Date 08/01/2009	
Award Description Collaborative Research: CRI-RUI: II-New Attract: Aerial and Terrestrial Testbed for Research in Aerospace, Computing and Mathematics - The objective of this project is to inspire students at Tuskegee University and Auburn University in mathematics, aerospace science engineering, and networking by inviting them to contribute to a grand project: fly safely and efficiently, in a limited space, a fleet of autonomous unmanned aerial vehicles (UAVs) on a cooperative mission with terrestrial vehicles. While the project may take over five years to complete, the scope of this proposal is to set up in two years the required research infrastructure with the collaboration of undergraduate and graduate students.	

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Project Information

Project Name or Project/ Program Title	Quarterly Activities/ Project Description	Activity Codes (NAICS or NTEE-NPC) (up to 10)
Collaborative Research: CRI-RUI: II-New Attract: Aerial and Terrestrial Testbed for Research in Aerospace, Computing and Mathematics	<p>We have assembled four unmanned aerial vehicles (UAVs). We are able now to create in a short time multiple copies. We aimed to "acquire" ten UAVs for about \$100,000. Now, we will assemble them ourselves by March 2011 and have twelve UAVs for less than \$12,000. Due to unavailability of some parts and delays in deliveries, we could not complete the 12 UAVs by the end of March 31 as scheduled. We should definitely completed the assembly of 12 UAVs at Auburn University and 5 UAVs at Tuskegee University.</p> <p>In this quarter, we worked on a general framework to compartemize the development of each part of this system to involve multiple graduate and undergraduate students. Two key components are: collision avoidance and the communication network. Many Unmanned Aerial Vehicles will fly at the same time in the limited space. In these scenarios, some collision avoidance needs to be implemented in order to prevent the multiple UAVs from colliding with each other mid-air. However, it becomes difficult to test collision avoidance without using the actual planes (which may lead to collisions during the testing of the avoidance algorithm). In order to prevent this, a simulation is needed in order to test the collision avoidance algorithms and provide methods for evaluating whether A) the algorithm is working and</p>	<p>Activity Code 1 B43 - NTEE Activity Code 2 Activity Code 3 Activity Code 4 Activity Code 5 Activity Code 6 Activity Code 7 Activity Code 8 Activity Code 9 Activity Code 10</p>

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B) a simulated collision has occurred. For this simulation to be a success, the algorithm and control mechanisms shouldn't be able to tell the difference between simulated planes and real planes. In order for this to work, we are designing a system using the Robot Operating System (ROS) so that the simulation and real planes can be run independently or even concurrently. This will allow for the safe testing of avoidance algorithms before being used in the field.

Project Status Less than 50% completed
Total Federal Amount ARRA Funds Received/ Invoiced 76637.27
Number of Jobs 1.29
Description of Jobs Created Graduate Assistant and Student Workers
Total Federal Amount of ARRA Expenditure 83832.46
Total Federal ARRA Infrastructure Expenditure 0.00
Infrastructure Purpose and Rationale

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Infrastructure Contact

Name	Street Address 1
Email	Street Address 2
Phone	Street Address 3
Ext	City
	State
	ZIP Code + 4

Primary Place of Performance

Address 1	107 Dunstan Hall
Address 2	
City	Auburn University
Country Code	US
State	AL
ZIP Code + 4	36849 - 0001
Congressional District	02

Recipient Highly Compensated Officers

Prime Recipient Indication of Reporting Applicability	No	Officer 3 Name	
Officer 1 Name		Officer 3 Compensation	
Officer 1 Compensation		Officer 4 Name	
Officer 2 Name		Officer 4 Compensation	
Officer 2 Compensation		Officer 5 Name	
		Officer 5 Compensation	

Report Audit Trail

Created By	Cindy Selman
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