



Cristina Blanco  
Pinecrest Gardens Director  
gardens@pinecrest-fl.gov

MEMORANDUM  
Pinecrest Gardens

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DATE: June 5, 2023  
TO: Yocelyn Galiano, ICMA-CM, LEED GA, Village Manager  
FROM: Cristina Blanco, Pinecrest Gardens Director  
RE: Animatronics Project Update

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I hereby respectfully share the update that Pinecrest Gardens/Village of Pinecrest is exploring the potential of an animatronics project with University of Florida's Engineering Program.

A lead professor and group of interdisciplinary students (engineering, industrial design, material science, and others) would be assigned to design and implement the creation of two animatronic birds (a Macaw and Cockatoo) to help us preserve and tell the history of Pinecrest Gardens to visitors. The initial scope of work is attached.



**IPPD Engineering Senior Design Program  
Project Scope of Work (SOW)  
Academic Year 2023-2024**

Department of Engineering Education  
Herbert Wertheim College of Engineering  
University of Florida, Gainesville, FL

<b>Date</b>	04/21/23
<b>Project Title</b>	Pinecrest Gardens' Animatronic Story Telling Macaw and Cockatoo
<b>Company</b>	The Village of Pinecrest

**Executive Sponsor Information**

*Project agreements and invoices will be sent to the attention of the executive sponsor or their designee*

**Executive Sponsor**

*Send agreements and invoices to the attention of*

<b>Name</b>	Yocelyn Galiano
<b>Title</b>	Village Manager
<b>Address</b>	12645 Pinecrest Parkway Pinecrest, FL 33156
<b>Phone</b>	305-234-2121
<b>Email</b>	<a href="mailto:ygaliano@pinecrest-fl.gov">ygaliano@pinecrest-fl.gov</a>

<b>Name</b>	Cristina Blanco
<b>Title</b>	Pinecrest Gardens Executive Director
<b>Address</b>	11000 SW 57 <sup>th</sup> Ave Pinecrest, FL 33156
<b>Phone</b>	305-669-6990
<b>Email</b>	<a href="mailto:cblanco@pinecrestgardens.org">cblanco@pinecrestgardens.org</a>

**Liaison Engineer Information**

*The liaison engineer(s) are the primary technical point of contact(s) for the project team*

**Primary Liaison Engineer**

**Back-Up Liaison Engineer**

<b>Name</b>	David Mendez, P.E.
<b>Title</b>	Public Works Director
<b>Address</b>	10800 Red Road Pinecrest, FL 33156
<b>Phone</b>	305-669-6916
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<b>Name</b>	Leo Llamas
<b>Title</b>	Structural Engineer
<b>Address</b>	
<b>Phone</b>	305-234-2121
<b>Email</b>	<a href="mailto:llanos@pinecrest-fl.gov">llanos@pinecrest-fl.gov</a>

## Selection Criteria for Industry Sponsored Designed Projects

1. Project should solve a well-defined need.
2. Project should not be of immediate concern to company assuming a minimum development cycle of two semesters (eight months), with the following timeline:
  - a. Project definition by sponsor and IPPD: February – July
  - b. Project design by development team: August – December
  - c. Project development and evaluation: November – April
3. Discrete projects should involve design and manufacture. For example:
  - a. a physical prototype for a new product or product derivative including the associated manufacturing processes
  - b. the redesign of an existing product including a physical prototype and the associated manufacturing processes (redesign for cost, quality, performance, productivity, automation, etc.)
  - c. a physical prototype for new or redesigned test equipment or manufacturing process
4. Continuous process projects should involve design, modeling and analytical prototyping.
5. Discrete projects can have firmware content.
6. Projects may be purely software oriented with the requirement that two or more disciplines are needed to successfully execute.
7. Manufacturing-oriented projects may include lean manufacturing aspects such as facility layout, set up reduction (i.e. quick changeover), process control, and equipment selection.
8. Project scope should be approximately 600 engineering hours (spread over an eight-month calendar period).
9. Student teams (4 to 7 per team) will be responsible for the success of the project.
10. Student teams will be coached by experienced engineering faculty (3 to 6 hours/week).
11. Sponsor must dedicate the time of a liaison engineer for the project (1 - 4 hours/week).
12. Liaison engineer should:
  - a. have management support
  - b. have vested interest in the success of the project
  - c. be willing to work with students
13. Projects should not be classified or highly proprietary. **Projects must not require access to ITAR materials or data.**
14. Upon completion, students will publicly present their work with the approval of the sponsor.

This document provides information required to understand the project scope and define the key technological expectations.

The target audience for the first draft is an experienced engineering faculty member that will mentor the multidisciplinary team of undergraduate students tasked with completing the project. Once a common set of project expectations is established between the sponsor and the UF faculty, this document will be submitted for approval to the office of UF Research.

The final SOW will be provided to the chosen student team to initiate project development.

### **Project Background Information**

*Please provide background information on your company and a context for the project. How does this project relate to your business? Why is it important?*

<p><b>Project Background Information</b> <i>(boxes resize automatically)</i></p>	<p>Parrot Jungle was founded in 1936 by Franz and Louise Scherr and became a world-famous tourist attraction, one of the first and oldest surviving in Florida, whose visitors included Sir Winston Churchill and President Jimmy Carter. The idea for Parrot Jungle began after Scherr, an immigrant from Austria, became intrigued with the idea of building an attraction where exotic birds could “fly free”.</p> <p>The attraction opened on December 20, 1936, and by the end of its first year of operations, Parrot Jungle and Gardens had become an internationally renowned attraction, providing family entertainment to tens of thousands of visitors. On December 17, 2002, the Village of Pinecrest, with grant assistance from the Florida Communities Trust completed the purchase of Parrot Jungle and renamed it Pinecrest Gardens.</p> <p>Today, Pinecrest Gardens is listed on the National Register of Historic Places. It is an internationally known botanical, historical, educational and cultural asset nestled in the Village of Pinecrest. The Gardens has a spectacular, inclusive playground, a splash pad, multiple performing arts and cultural facilities, including a 500-seat amphitheater, two art galleries, and an Inspiration Center for educational and cultural initiatives.</p> <p>When the Village of Pinecrest purchased the venue from Parrot Jungle, there was a stipulation/covenant that prohibited Pinecrest Gardens from having live exotic birds on the property or from using the images of exotic birds for anything other than historic recall. Telling our story through animatronic parrots will convey our history in a far more compelling manner. This exhibit would be a key asset in educating current and future generations about this one-time iconic, national tourist attraction.</p>
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## Project Summary

*Provide a brief (30 to 50 words) project summary*

<b>Project Summary</b>	The Village of Pinecrest is requesting consideration for an IPPD partnership for the development, design, fabrication, and installation of a permanent exhibition dedicated to the history, heritage and culture of Pinecrest Gardens. Two animatronic birds, one macaw and one cockatoo (herein referred to as the two birds) positioned in a historic cage will recall stories from the tourist attraction's history and/or deliver relevant programming information and initiatives. This public exhibit would both impart the site's history while honoring its tradition of family entertainment in a unique and interactive manner.
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## Most Important Project Objectives

*Provide a list of key objectives for the project.*

<b>Most Important Objectives of Project</b>	<p><b>Main Objective:</b> To build two birds. The project might require continuous process in designing a virtual or analytical prototype first, followed by discrete manufacturing for building the final product.</p> <p><b>Educational Objective:</b> This animatronic exhibit, featuring (one macaw and one cockatoo), will educate the public on the issues related to Pinecrest Gardens' rich history and environmental attributes, along with educational and recreational initiatives.</p> <p><b>Cultural Objective:</b> Family entertainment was at the very core of everything that Parrot Jungle was. There were live bird and animal shows, demonstrations and interactive presentations that delighted visitors of all ages. By utilizing animatronic birds to recall the rich and unique history of Parrot Jungle, we can pay tribute to its cultural past while providing entertainment value to audiences of all ages.</p> <p><b>Public Awareness:</b> This animatronic presentation will present and preserve the historic relevance of this iconic venue to new generations of visitors.</p>
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## Design Expectations

*Provide a list of the key design deliverables, including items such as required CAD/CAM/CAE formats and tools, documentation standards, and software environments.*

<b>Design Expectations</b>	Our deliverables should include the following: <ol style="list-style-type: none"><li>1. Two life size and lifelike birds (one macaw and one cockatoo.</li><li>2. The two birds are to be mounted on a lifelike branch where they can interact with each other, or speak to the public.</li><li>3. The animatronics will have full audio capabilities, both birds will be speaking to the audience and/or conversing with each other utilizing prewritten and prerecorded scripts developed by Pinecrest Gardens staff.</li><li>4. The audio component must be formatted to allow for change of scripted copy. The frequency of change is not yet known. The</li></ol>
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	<p>recordings will be provided by Pinecrest Gardens using the voiceovers of professional actors.</p> <ol style="list-style-type: none"> <li>5. Movements of the two birds should include: <ol style="list-style-type: none"> <li>a. Head turn</li> <li>b. Head nod</li> <li>c. Beak movement (synchronized to script) when speaking</li> <li>d. Body bow</li> <li>e. Wing flap</li> <li>f. And the cockatoo crest to go up and down.</li> </ol> </li> <li>6. We would like the exhibit to be interactive and activated by the visitor</li> <li>7. The branch must be movable in some way to allow storage in the event of a hurricane or other weather episode.</li> </ol> <p>The two birds will be in a historic cage, situated outdoors and subject to heat and humidity. Pinecrest Gardens will construct a shelter that protects the animatronics from rain. Pinecrest Gardens will also provide electrical power to the cage if needed, and a safe and secured place to maintain the computer and/or circuit boards. We would need to know the optimal proximity for electronics or hardware in order to operate the animatronics effectively. We would leave the decision of CAD CAM and CAE formats to the experts. We believe that it might be beneficial to have an analytical prototype prior to building the final product.</p>

### Prototype Expectations

*Provide a description of the type and number of prototypes, and the level of sophistication (for instance, breadboard versus multilayered printed circuit board). Will the prototypes be simulated analytically? Are subscale prototypes acceptable? Are aesthetics important? Any unique resources that might be needed to develop the prototype?*

<p><b>Prototype Expectations</b></p>	<ol style="list-style-type: none"> <li>1. There will be two different audio-animatronic birds on a movable lifelike tree branch.</li> <li>2. The two birds will move their beaks to a prerecorded script</li> <li>3. The two birds should have a stainless-steel frame, be weatherproof, sun proof, use high quality silicone rubber, high-density sponge, and lifelike feathers, beaks, eyes and feet.</li> <li>4. Subscale prototypes are not recommended.</li> <li>5. Aesthetics will be very important. These figures should resemble a real-life macaw and cockatoo in both physical appearance and movement.</li> <li>6. We leave the breadboards or printed circuit board and simulation decisions to the discretion of the IPPD professors and students.</li> </ol>
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	<p>7. These are prototypes that need to withstand a lot of usage. We can have as many as 2500 people in the park at any given time. The interactive button, speaking mechanism and programmed movements need to be durable and able to withstand continual usage in an outdoor hostile environment.</p> <p>8. Pinecrest Gardens staff must be able to operate and maintain the animatronics without engineering knowledge. It is the intent of the Village to secure professional yearly (or as needed) maintenance for these feathered creatures.</p>
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### **Business Related Expectations**

*Include expectations for economic analyses and business considerations.*

<b>Prototype Expectations</b>	<ol style="list-style-type: none"> <li>1. We should be able to provide to our Spanish speaking audiences, audio conversations between the parrots in both English and Spanish, thereby attracting greater tourism from Latin America while serving the bi-lingual population of South Florida.</li> <li>2. The audio component should be designed with the capability of being changed and/or modified to highlight everchanging park happenings, special events, educational initiatives and to inform visitors of new features at the park. The two birds and their scripts will provide a dynamic marketing tool.</li> <li>3. It is expected that the exhibit will help to increase annual visitation to Pinecrest Gardens and the Village of Pinecrest, and with that comes a positive economic impact on South Miami-Dade businesses and restaurants.</li> </ol>
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### **Estimated Cost of Development**

*Teams will be provided a \$2,000 budget for development.*

<b>Estimated Cost of Hardware</b>	\$2000 is the goal, but we will consider additional funding to assure a lifelike and durable end-product.
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### **Estimated Company Time/Effort**

*Please base this estimate upon undertaking the project using internal company resources.*

<b>Estimated Company Time/Effort</b>	If The Village of Pinecrest was to undertake this project internally, it would span <u>  8  </u> calendar months, and <u>  600  </u> hours of engineering time
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	would be devoted to the project. Prototyping is estimated to take <input type="text"/> hours and validation testing (validation testing answers the question: “did we build the right product?”) would take approximately <input type="text"/> hours.
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### New Technology Requirements

Indicate emerging technology that may be required or needed for the project. Does the project require an invention to be successful?

<b>New Technology Requirements</b>	Audio-animatronics was developed years ago by the Walt Disney Imagineering department for shows at their theme parks. Since then, their usage has expanded globally. Audio-animatronics or similar but more advanced technology is what we hope can be used. These two birds will be performing for visitors on a daily basis, so a successful conclusion to this project should be anticipated and deemed necessary if we are to enter into an agreement.
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### Export Controls Requirement

UF assesses all new awards and changes to scopes of work utilizing a rigorous internal export control review. All project sponsors are required to answer the following questions:

<b>Export Controls Requirements</b>	1. Does the Sponsor/Prime believe the project (due to the technology involved/prime sponsor expectations) to be “controlled” pursuant to US Export Control Regulations? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
N/A	2. Will the Sponsor and/or Prime be giving UF any export controlled ( <a href="#">EAR</a> and/or <a href="#">ITAR</a> ) information, items or software for use in the conduct of this project? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
N/A	3. Does the funded research effort disclose to UF or provide UF access to any performance characteristics of military systems or manufacturing technologies that are unique and critical to defense? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
N/A	4. What is the <a href="#">NASA Readiness Level</a> and/or <a href="#">DOD Funding Category</a> for this project if applicable? <input type="text"/> <input checked="" type="checkbox"/> Not Applicable

### Project Attributes

Please indicate if any of the following elements are required for completion of this project:

<b>Project Attributes</b>	<input type="checkbox"/> Human Subjects <input type="checkbox"/> Animal Subjects <input type="checkbox"/> Biohazards <input checked="" type="checkbox"/> Not Applicable
<b>Project Content Is Mainly</b>	<input checked="" type="checkbox"/> Software <input checked="" type="checkbox"/> Hardware <input type="checkbox"/> Process

<p><b>For those elements that do apply, please provide a brief description and/or explanation</b></p>	<p>Software must be developed to test and ultimately run the animatronics and hardware is needed for the final product exhibit. The process might include an analytical prototype first to be tested, measured and observed before building the final product.</p>
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**Team Composition and Additional Information**

*Provide the potential team composition and additional information here as required.*

<p><b>Ideal engineering fields of students</b> <b>Additional skills needed for the team</b> <b>Supplementary Information</b></p>	<ol style="list-style-type: none"> <li>1. In addition to engineering students it might be beneficial to include students from the School of Art for the lifelike realization of the macaw and cockatoo.</li> <li>2. Pinecrest Gardens will be providing a contact person who will be responsible for following the project on a day to day basis and to provide the soundtracks.</li> <li>3. The Village will provide an IT specialist for integration with Pinecrest Gardens existing technology.</li> <li>4. The Village will provide an on-staff electrical engineer if needed.</li> <li>5. The Village will provide a WiFi specialist if needed.</li> <li>6. The Village will provide an engineer, without animatronic experience.</li> </ol>
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**Please Return This Form To**

**Edward Latorre-Navarro, Ph.D., P.E.**

**Director, IPPD Program**

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