



NASA EPSCoR
Research Performance Progress Report (RPPR)
Seed Award

I. Collaborating Organizations

A. Academic Collaborators (*do not include names of minors*)

Name	Academic Affiliation	RID Project Role	Nearest person month worked	Contribution to Project	Funding Support
Aiden Kempista	UD ECE	Intern	1	Linear potentiometer programing	This award
Sebastian Torres	UD ECE	Intern	1	Software design/prototyping	This award
Het Patel	UD Mechanical Engineering	Intern	1	CAD drawing/design	This award
Nicky Reigel	UD ECE	Intern	1	PCB design for programming	This award

B. NASA Collaborators

Name	Title	NASA Center	Nature of the Collaboration

C. Industry Collaborators

Name	Title	Industry/Company Name	Nature of the Collaboration

D. New non-EPSCoR grants

Funding Entity	Award Name	Value of New Grant

E. Other Organizations Involved as Partners

Organization	Nature of the Partnership	Benefit of the Partnership

II. Products

- A. List Journal publications – Please only list papers that have been published. **Please do not remove the table; or alter columns, add additional rows as required.**

Date Published	Published Paper (APA format)

- B. List Conference Papers – Please only list papers that are included in conference proceeding. **Please do not remove the table; or alter columns, add additional rows as required.**

Conference Date	Conference Paper (APA format)

- C. List Conference Presentation – Please list conference presentation. **Please do not remove the table; or alter columns, add additional rows as required.**

Conference Date	Presentation Topic (APA format)

- D. List Books and/or other Publications – Please include explanations, help us to learn about your accomplishments. **Please do not remove the table; or alter columns, add additional rows as required.**

Date	Explanations (APA format -Book, Newspaper Op-Ed, ...)

- E. List talk/presentation/event/outreach activity – Please include explanations, help us to learn about your accomplishments. **Please do not remove the table; or alter columns, add additional rows as required.**

Date	List talk/presentation/event/outreach activity (APA format if applicable)

- F. List of new or updated Website(s) or other Internet site(s). **Please do not remove the table; or alter columns, add additional rows as required.**

URL	Short description of purpose of site

- G. Technology/Technique – **Please do not remove the table; or alter columns, add additional rows as required.**

Technology/Technique	Short description of technologies or techniques

H. List patent – Please include Patent Number/Patent Title/ Patent Abstract (or link to it). **Please do not remove the table; or alter columns, add additional rows as required.**

Date Patent Issued	Patent Number/Patent Title/ Patent Abstract (or link to it)

I. List Inventions – Please include Invention Title, List of Inventor(s) and Description. **Please do not remove the table; or alter columns, add additional rows as required.**

Invention Title	List Inventor(s)	Invention Description

J. List Licenses – Please include license issued, Invention Title, List of Inventor(s) and Description. **Please do not remove the table; or alter columns, add additional rows as required.**

Date License Issued	License Assignees	License Title

- K. List New/Revised Courses – Please include new/revised courses. **Please do not remove the table; or alter columns, add additional rows as required.**

Course Number	Course Name/Title	Offering Institution

- L. Others: List Databases, Physical collections, Audio or video products, Software or NetWare, Models, Instruments or equipment, Data & Research Material (e.g., cell lines, DNA probes, animal models) related to your EPSCoR research. **Please do not remove the table; or alter columns, add additional rows as required.**

Accomplishments title	Short Description of accomplishments
Cad models	This proposal is supporting the development of a new tool, called the Bendy Box, to study plant biomechanics in space. We have designed the components for this tool and are starting to prototype.
Prototype	The Bendy Box has been prototyped and is function to measure plant biomechanics in a self-contained system.

III. Changes/Problems

- A. Actual or anticipated problems or delays and actions or plans to resolve them

We have generated a functional prototype of the Bendy-Box.

B. Changes that have a significant impact on expenditures

None

IV. Impact

Include article and photo w/caption (see instructions). Obtain permission to publish photo from any recognizable person. Do not include photos of minors.

The growth of organisms in microgravity changes the perception of mechanical signals and mechanical outcomes, yet we still understand little about these pathways on Earth or in microgravity. We hypothesize that gravity is critical for sensing and responding to mechanical stimuli in multicellular organisms. However, addressing this hypothesis requires the ability to rapidly assess mechanics in space. This seed proposal has developed a tool to do just this. The Bendy Box is a self-contained growth and biomechanics measurement system for plants to investigate how microgravity and the space environment impacts plant mechanics. At the end of this award, we have successfully prototyped the Bendy Box concept and are troubleshooting the different plant growth platforms that are compatible with this device.