**Request Form for Senior Design Project Proposals  
Dr. Horacio Vasquez**

**July 30, 2015  
Rev A**

* **Project Title: Design & Control of a Self-balancing Robot**
* **Is the project CONFIDENTIAL? Yes / No**

**No**

* **Pl. identify critical Design Component(s)?**

**Frame, motors, sensors, and controller.**

* **Expertize needed to address the design component (pl. circle ALL that apply)**

**Statics, Dynamics, Thermo, Fluids, Controls, K&D, Heat Transfer, Materials, FEA, …..**

**Pl. add anything else you feel needed. Thanks.**

**Dynamics, System Dynamics, Machine Elements, Electronics**

* **Special software expertise needed?**

**Matlab, LabView, Algor, Solidworks, …..**

**Pl. specify if there’s anything else? Thanks.**

**Matlab, Solidworks**

* **Is Machine shop expertize needed? Yes / No**

**A little bit**

* **Pl. mention MINIMUM Measurable Outcome(s):**

**Design, simulate, construct, and test the system.**

* **Is there any Key Performance Indicator (KPI) you plan to use to measure progress towards Measurable Outcome?**

**Continuous progress every week to design and simulate the system. Start writing programs to learn how to use the microcontrollers. Distribute work among team members and make everyone report results.**

**If you’ve a write-up you want to add, pl. do so either as an attachment or type/write below & over. Thanks.**

Balancing robot using micro-controllers (Raspberry Pi and Arduinos). A two-wheeled balanced robot with a reliable control system. Design, modeling, and simulations, and programming will be important parts of the project.  System Dynamics is a co-requisite for this project.