

Mini-Project 3: Project Details**The Competition:**

On Wednesday, February 15, 2012, we will hold a competition to test the results of your programs.

Here is the competition procedure:

1. A Prediction Card will be passed out to each team.
2. The instructor will quickly review the rules.
3. The instructor will announce the data values: (D, m, x_{\max}) . Teams will have 30 minutes to complete step 4. After that, no more submissions will be accepted.
4. Teams will use their MATLAB code to predict the shot parameters (d, θ) and write them on the prediction card. Program results should be left on the screen.
5. The instructor will verify that the values reported are the ones appearing on the computer screens. The instructor will keep the prediction sheets.
6. The predicted shot parameters of every group will be tested with the large sling shot.
7. The winners of the competition will be determined by points scored in their shot.

The winners will be showered with recognition of a job well done—and probably candy!

Grading:

The grade for the mini-project will be computed with the weights shown below.

- 20 pts Contest prediction
- 20 pts Technical memo describing code and results
- 20 pts Working Model simulation
- 40 pts Matlab Code
- 100 pts

Contest prediction:

Points for accuracy will be awarded as follows:

<u>Test Outcome</u>	<u>Points</u>
Make a basket	20
Hit painted square above basket	15
Hit backboard	10
Land within 10 ft of basket	5
No submission	0

Technical memo describing code and results:

This is similar to what you created for the first two mini-projects. The text of your memo should be 1.5-2 pages long and should include the following:

- An introduction that summarizes the goal of the project.
- A brief description of your computational scheme—including how you searched through possible parameters to find the best sling deflection and shooting angle values.
- A brief discussion of how well your MATLAB and Working Model simulations compared with each other.
- The predicted values from the contest day and how well your team did. This should include a plot of the ball trajectory. Add annotations to show where the target was.
- Your MATLAB code and all requested plot(s) as separate attachments.

Computer Simulations:

Attach a well-documented MATLAB code and a printout of your Working Model screen to your memo.

Deliverables:

- MATLAB program that takes the data and computes a shooting solution. It must also display the trajectory of the ball. Due at the contest, Wednesday, February 15, 2012.
- Memo describing your results with well-commented code attached. Due on Friday, February 17, at 5pm. (Due on Friday of tenth week.)
- Your MATLAB program files and your Working Model file should be uploaded to the DFS exam folders by Friday, February 17, at 5pm.