

Black Panther

MCHE 201 Final Project – Spring 2018

When: Thursday, April 19th

Where: Blackham Coliseum

A long time ago, a meteorite landed in the Kingdom of Wakanda. The metal that formed the meteorite, Vibranium, is both much stronger and much lighter than steel. The landing of that meteorite also affected a local plant, changing it into a Heart Shaped Herb that provides special powers upon ingestion. Since that time, Vibranium has driven the technology of Wakanda, which has remained isolated from the rest of the world, hiding its power. To protect Wakanda, the job of serving as the Black Panther has been passed down through generations of its rulers. Recently, some Vibranium was stolen, and the king killed. The Black Panther must restore order and protect Wakanda. Luckily, *MCHE 201* students can help.

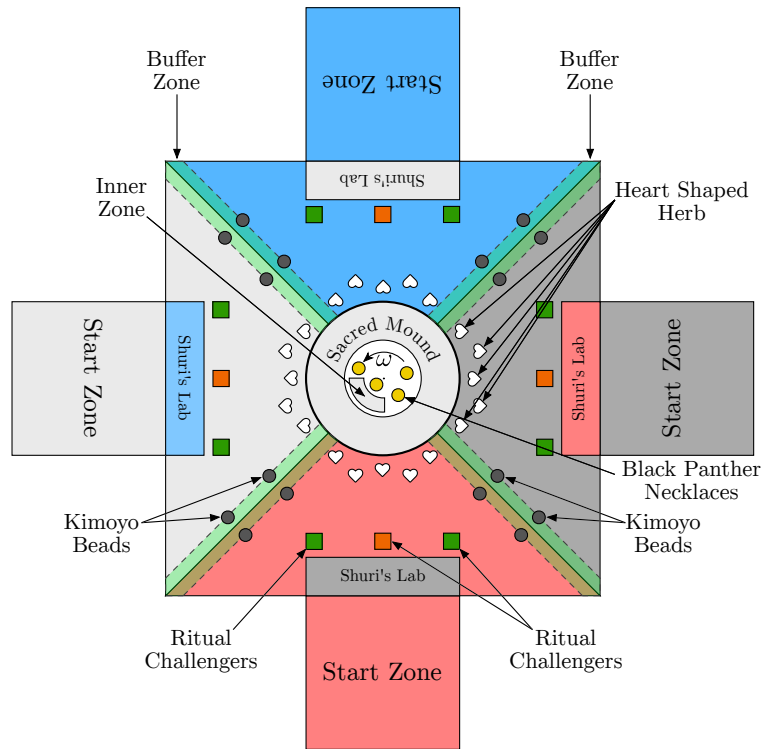


Figure 1: Wakanda

The Competition

On April 19th, the Black Panther robotics contest will be held in Blackham Coliseum. There will be two events.

Design Review: From 5 – 6pm, a panel of judges will perform a design review of each machine. The teams must describe their machines quickly and clearly to the judges that visit, who will evaluate each team on aesthetics, ingenuity, and presentation.

Black Panther Contest: Following the design review, the robots that the students have designed and built will compete in a head-to-head competition on the representation of Wakanda shown in Figure 1. The robots have thirty seconds to *Defeat Ritual Challengers*, *Gather Heart Shaped Herb*, *Collect Kimoyo Beads*, *Return Vibranium to the Sacred Mound*, and *Put on the Black Panther Necklace*.

Competition Details

The student robots can earn, or lose, points based on their robot's performance in each category of the Black Panther contest. The details of each are listed below.

Defeat Ritual Challengers: In each zone, there are three Ritual Challengers (toy blocks). For each Ritual Challenger that is not *completely* removed from the team zone, the team will be penalized 10 points.

Gather Heart Shaped Herb: In each zone, there are five pieces of Heart Shaped Herb (small heart-shaped sponges). For each piece of Heart Shaped Herb that is gathered and placed *completely* in Shuri's Lab within the team's zone, the team will earn 5 points. If four or more pieces are gathered, then the team will earn 10 points for each piece.

Collect Kimoyo Beads: There are two Kimoyo Beads (foil-covered table tennis balls) located at the edges between the team zone and each of its neighbors. For each Kimoyo Bead collected *completely* into the team's zone, the team will earn 5 points. There is a small buffer at the edge of the team zone. If *any* part of a Kimoyo Bead lies in that buffer zone, it will not earn points.

Return Vibranium to the Sacred Mound: Prior to the each competition round, each team will be given three pieces of Vibranium (small LED keychains). For each piece of Vibranium delivered to the Sacred Mound, the team will earn 5 points. For each one placed into the rotating Inner Zone, the team will earn 15 points.

Put on the Black Panther Necklace: On top of the Sacred Mound there are four Black Panther Necklaces (foil-covered table tennis balls). If one or more of these is *completely* collected into the team's zone, the team will earn 25 points. If it is moved to *completely* within the team's Start Zone, the team will earn 50 points. If multiple Necklaces are collected, the one earning the *lowest* point total will be counted.

For more information, please see the full set of competition rules at:

http://crawlab.org/classes/MCHE201_Sp18/Projects/MCHE201_FinalProject_Spring2018.pdf

You can also have a look at the hard work the students have put in already in the class flickr album at <https://flic.kr/s/aHsmbW159G> and get more information on the class at <http://www.ucs.louisiana.edu/~jev9637/MCHE201.html>.

Acknowledgements

A kit of additional mechatronic components is issued to each team. These kits were purchased via funding provided by a University of Louisiana at Lafayette Course and Curriculum Design Grant and a University of Louisiana at Lafayette STEP Award.