**Assignment 4: Getting started with Task Groups**

Task Groups 11/15/20:

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| **Armor** | **Power Rune** |
| Ethan | Dipu |
| Chuwei | Tahmeed |
| Dayana Alejandro | Yuehan Dong |

**Background**

The two competition tasks we’re interested in right now are:

1. **Robot Armor Detection + Tracking**

> for pinpointing opponent robot targets to shoot.

1. **Double Damage Power Rune**

> for gaining damage bonuses during the round.

1 is of course necessary for us to damage any opponent robots to begin with, but having a working CV solution for 2 would be a huge advantage since it’ll give us opportunities to seize objectives and control of the game field via the threat of higher firepower.

**Objective of Task Groups:** The intent is for each task group to iterate between research and prototyping phases toward implementing working CV programs for their tasks. Also, we want to document our process and share it with each other so we have a better understanding as a team, and can reference our past work if we need to.

**Assignment:**

In your group this week, learn more about your task and make sure everyone is on the same page, find some resources you can begin exploring for prototyping, document what you find effectively, and share it with everyone on Sunday.

**Format:** It would help to have visuals like a short slideshow or pictures for reference. But it can also just be a text document or anything that you can record your ideas properly with.

Please also upload the work to the CV drive folder when you’re ready, so keep in mind that we want to create materials people can use to learn what we’re doing.

**Guidelines on next page**

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**Guidelines (suggested things to include):**

1. Come up with a concrete definition or description of what your task is based on RoboMaster manuals and/or research
   1. Have a good understanding of why or why not we and other RoboMaster teams are interested in having a CV program for this task
   2. What might be some specific intermediary things you have to solve to complete the task? (see if you can break the problem into smaller components)
   3. What do you think are the parameters required by a CV solution for this task? By parameters I mean any data/factors that can be used as inputs to your CV program to help it make a more intelligent/informed prediction
      1. Examples: color, luminosity, shape, size, velocity etc. that would help detect or track a specific kind of object.
      2. Think about what kinds of data are available in a RoboMaster match from the camera perspective of a robot on the playing field
2. Several specific resources you can find online that you think you might be able to reference or use directly for initial prototyping
   1. Similar to assignment 3 where we each found some links and wrote summaries of what we found, except now specifically for your task
   2. We want to focus on practical resources, so try to find actual code or projects we might be able to test or borrow from (try searching for Github repositories or CV blogs/tutorials)
      1. Is there any source code you think you can try downloading and running relatively quickly? Which resources seem the most straightforward to use or easy to understand?
3. Propose an initial, general plan for how you can approach prototyping. Maybe address which resource(s) you think you will start testing/building with first, or tell us if you feel you need to look into more options