Lab 7: Group work on projects
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The goal of this lab is for you to make progress on your project, together as a group. You'll set goals and work towards them, and report what you got done, challenges you faced, and subsequent plans.

Group name: triple fighting

Group members present in the lab today: Songhao Jia , Jiajun Bao , Zongyue Zhao

1: Plan
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1. What is your plan for today, and this week?
    a. As the detection model has a high latency, even after down-sampling the input image size, we decide to follow the advice from the instructors to reformat the task to classification.
    b. Try to deal with the dependency issues for model deployments.
    c. Integrate and test the wake word module on the board.

2. How will each group member contribute to this plan?
    a. Zongyue Zhao: modify the visual cognition pipeline to classification.
    b. Songhao Jia: dependency issues
    c. Jiajun Bao: integrate and test the wake word module on the board.

2: Execution
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1. What have you achieved today / this week? Was this more than you had planned to get done? If so, what do you think worked well?
    a. Finished the classification (transfer learning) pipeline.
    b. Tried several different ways to deal with the error by tensorRT but not got a solution; set up the connection to expose the machine to the public network
    c. Test a wake word module on the board. This part did not work as expected.
2. Was there anything you had hoped to achieve, but did not? What happened? How did you work to resolve these challenges?
    a. There were several unexpected problems when transforming normal PyTorch code to tensorRT, including raising cuda-related error, tensorRT-related error and so on. Multiple attempts were made to overcome these issues, including updating library, create new docker and so on, but all failed.
    b. Training takes time, but we to get quantitative results by this weekend.
    c. When trying to test the wake word detection module, we found that it could not be run on an ARM machine. We then decided to implement this module with a library that supports ARM.
3. What were the contributions of each group member towards all of the above?
    a. Songhao Jia: Deploy custom model to board.

  b. Zongyue Zhao: Building the fine-tuning classification pipeline.
  c. Jiajun Bao: test the wake word module on the board;

3: Next steps
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1. Are you making sufficient progress towards completing your final project? Explain why or why not. If not, please report how you plan to change the scope and/or focus of your project accordingly.
Yes. When using the classification model, the latency decreased from ~7 s/iteration to ~15 iterations/s, even during training. We expect the inference latency to be even less significant.

2. Based on your work today / this week, and your answer to (1), what are your group's planned next steps?
a. Continue to figure out the way to deploy model ASAP.
B. Fine-tune the classification model, finish training and meet this weekend to integrate everything together.
c. re-implement the wake word detection module to support ARM.
3. How will each group member contribute towards those steps?
  a. Songhao Jia: model deployment.
  b. Zongyue Zhao: train and tune classification models.
  c. Jiajun Bao: re-implement the wake word detection module to support ARM.