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| UCI Life  Day 1 | Software  Day 2 | Hardware  Day 3 | Wiring & Testing  Day 4 | Skills Challenge  Day 5 |
|  | Pi Introduction | Learn about computer vision code | Complete Wiring (See Diagram) | Learn about optimization parameters |
|  | Test Motors with 9V | HSV Values (Learn how to click the colors) | Test Wiring | Run Tournament |
|  | Test Cameras |  | Ensure Motors Have Proper Directionality |  |
|  | Learn about SSH/VNC | Fabricate the Hardware |  |  |
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1. Software
   1. Pi introduction (Ernest’s slides)
      1. Give out SD Cards with OS
      2. Connect the Rpi to monitor
      3. Connect Mouse and Keyboard
      4. Rpi Setup

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Maaaring hindi tama ang nilalamang na-generate ng AI.

* + - 1. Setup user and pass
      2. Connect to wifi
    1. Frontload some terminal information
       1. Explain how to use terminal (shortcuts?)
       2. `sudo apt update`
  1. Think about how the Robots will function. Two components:
     1. Motors
     2. Cameras
     3. How do these work together to play soccer?
  2. Test Motors
     1. Use direct connection to 9V Battery
     2. Ensure motors go backwards and forwards
  3. ` sudo apt install python3-opencv python3-gpiozero python3-picamera2`
  4. Frontload information about how and why to use SSH/VNC
  5. Test Camera
     1. Connect the Camera (be careful)
     2. Test with `rpicam-hello`

1. Computer Vision, HSV, and Hardware
   1. Test the Code
      1. `sudo git clone <https://rasp@github.com/ajcalinisan/roboticscamp2025>`
      2. `cd roboticscamp2025`
      3. `python green\_ball\_tracker.py`
      4. See if it can track a pickleball
   2. Learn about HSV values and how opencv tracks colors
      1. HSV color picker
      2. Click the window in green\_ball\_tracker.py to see real-life values
   3. Fabricate the base (See separate “SoccerBot Assembly” document)
2. Wiring and Testing
   1. Complete Wiring (See Wiring Diagram)
   2. Test
      1. Use motor\_test.py to confirm forward, back, left, and right movements
      2. Check to make sure camera still works
   3. Run soccer\_bots.py on startup. Go to crontab section in README.md
   4. Test Outside
      1. Ensure that soccerbot works
      2. Ensure soccerbot travels straight after it centers the ball in its camera
      3. Modify soccer\_bot.py
         1. `sudo nano soccer\_bot.py`
         2. `sudo thonny soccer\_bot.py`
         3. Change these values especially RIGHT\_SPEED and LEFT\_SPEED (these speed values will likely both have to be 1.0 and 1.0 (not 1.0 and 0.7)Isang larawang naglalaman ng text, screenshot

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3. Tournament Day
   1. Further optimizations may be done by tweaking the SPEED, TIME, SLEEP, CENTER, and RADIUS parameters.
   2. Run a bracket by timing each robot to see how long it takes them to push a ball out of a designated zone.