

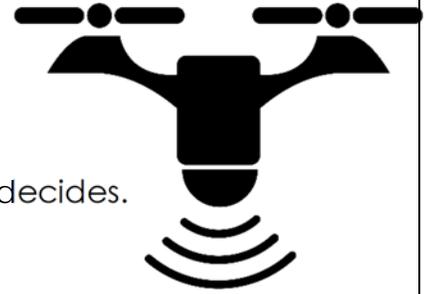
Name \_\_\_\_\_

### Case Study Deconstruction - Perception, Reasoning, Action

**Perception** = how the system gathers information.

**Reasoning** = how the system makes sense of information and decides.

**Action** = what the system does in response.



**Directions** - Read each case study. Underline where **Perception, Reasoning, and Action** occur. Then, write 1-2 sentences explaining each step.

**Case Study 1 - Shopping Recommendation Bot** - An online store logs what you searched for, which items you clicked, and how long you looked at each page. It compares your recent activity with thousands of other shoppers who behaved similarly. Based on shared patterns-like people who viewed wireless earbuds also buying a certain phone case-the system decides which products you are most likely to buy next. It then places a "You might also like..." row beneath your cart and sends a follow-up email with two top picks.

Perception: \_\_\_\_\_ Reasoning: \_\_\_\_\_

Action: \_\_\_\_\_

**Case Study 2 - Smart Traffic Signal** - Cameras and road sensors count cars and measure queue length at a busy intersection. The controller weighs current traffic flow against the timing plan for the hour and checks for unusual conditions (like a stalled vehicle). It selects a timing that clears the longest line first and shortens the empty lane's green. The lights switch phases accordingly, and the walk signal is delayed by 10 seconds to finish clearing the turn lane.

Perception: \_\_\_\_\_ Reasoning: \_\_\_\_\_

Action: \_\_\_\_\_

**Case Study 3 - Robot Vacuum** - Bump sensors and a camera detect walls, chair legs, and a patch of crumbs near the table. The vacuum estimates which floor areas it has already covered and which zones still look dusty. It chooses a spiral pattern for the dirty spot and increases suction for two minutes. The robot then drives to the charging dock when the battery drops below 15%.

Perception: \_\_\_\_\_ Reasoning: \_\_\_\_\_

Action: \_\_\_\_\_