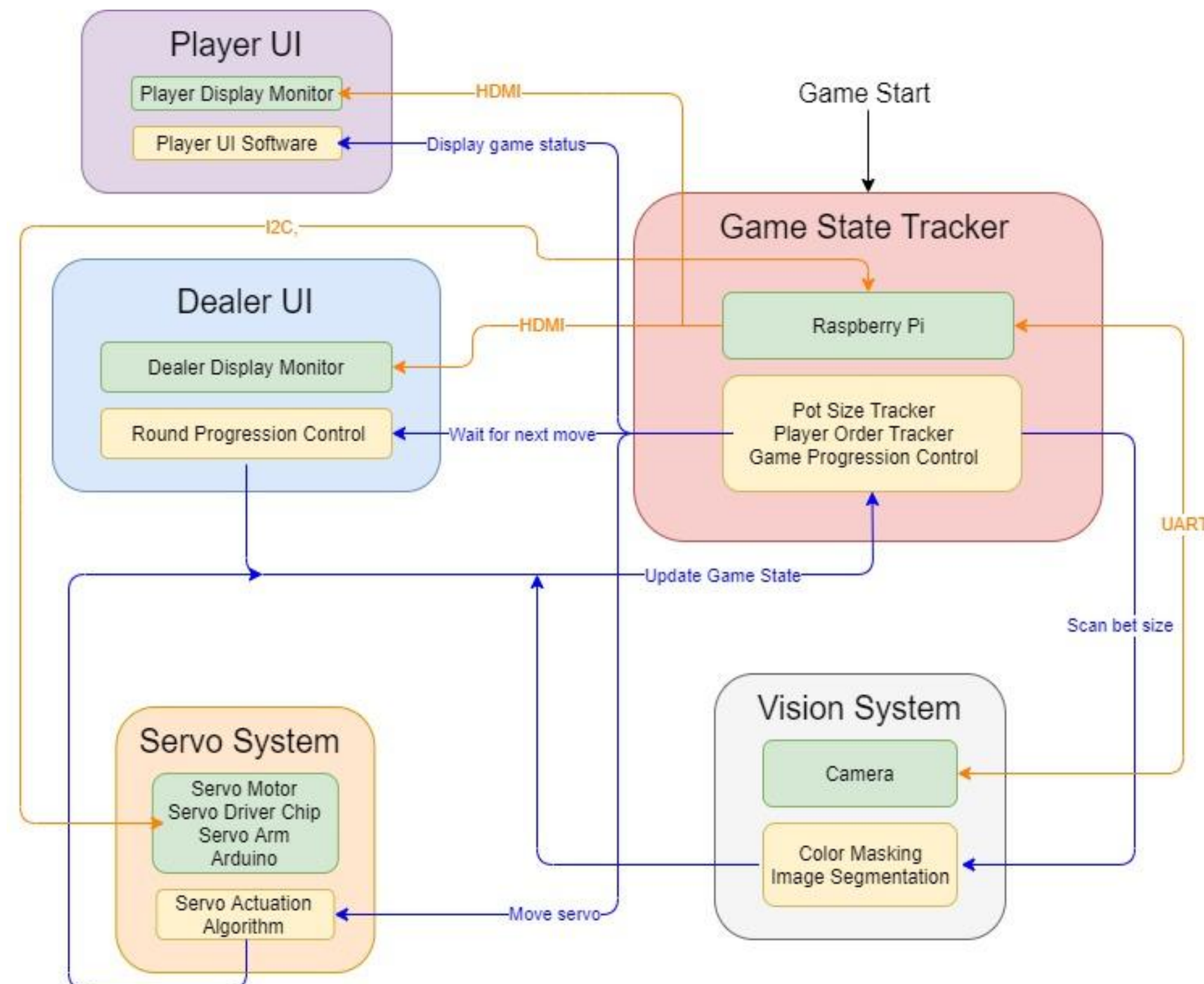


Product Pitch

As online poker games grow in popularity and convenience, live poker practices feel increasingly out of date. Without the information being in front of their faces, serious players constantly query their dealer for answers. This causes the players' attention to drift away from the most integral part of the game: decision making. Smart Poker Table is a way to provide a speedy real-time estimation of game data accessible for all players to access through an intuitive user interface. Designed for casinos and hobbyists alike, Smart Poker Table fulfills its purpose as **an easy to use device for both players and dealers that automatically tracks and displays the pot and bet sizes that simulates the convenience of an online poker game in real life.**

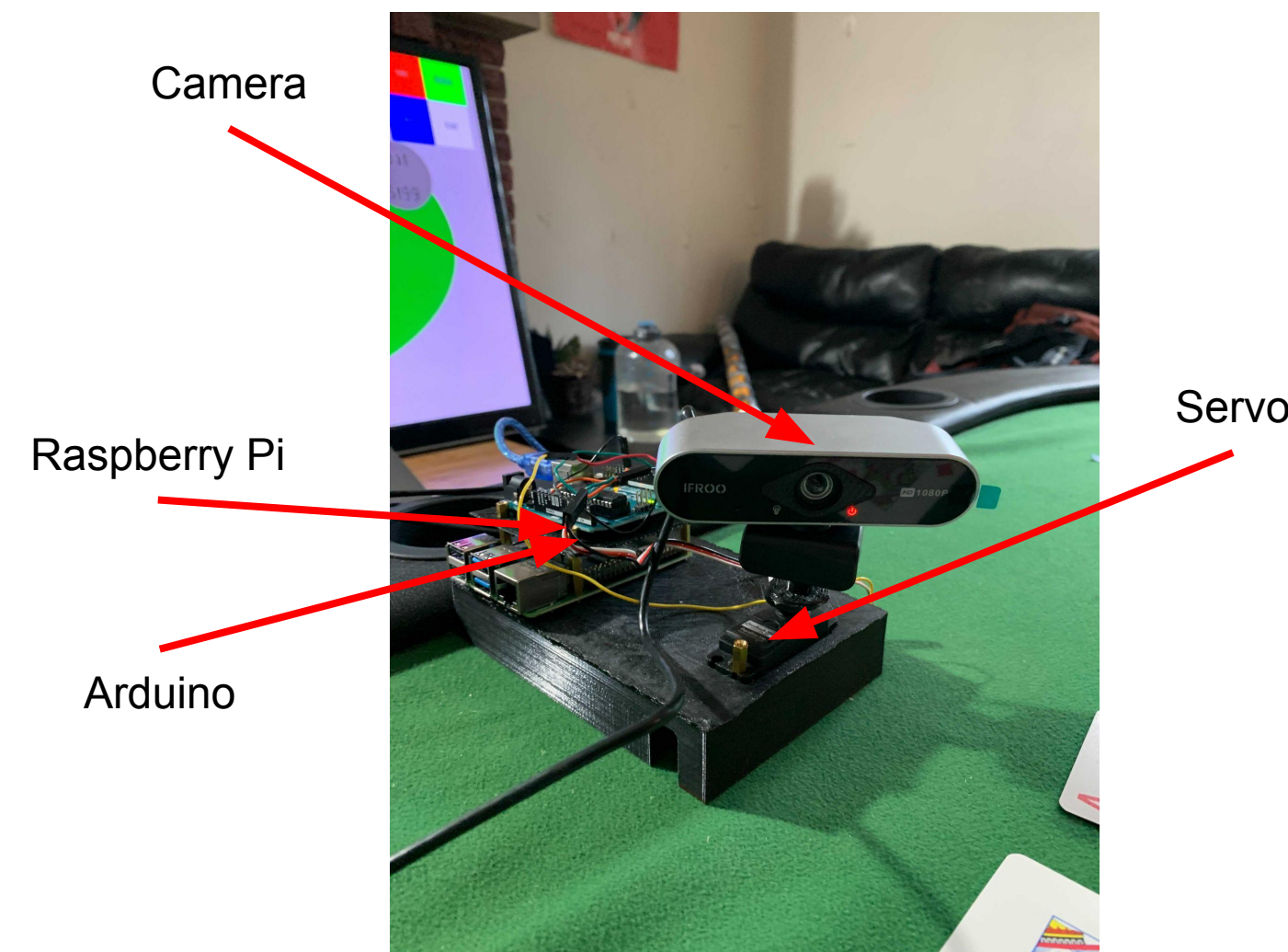
System Architecture

Overall System Architecture



System Description

Camera, Servo, and Electronics



Full setup, on poker table



System Evaluation

Summary of Testing, Metrics and Validation

Component	Testing Strategy	Metrics	Results
Servo Motor	Input: unique ID assigned to each player Output: servo rotating to the specified position	Camera angle offset within +/- 4 degrees; camera should rotate to the position within 5 seconds	Success: Average error = 1 degrees Success: Average time = 1 sec
Computer Vision	Input: unoccluded picture of bet Output: total value of bet	Verify +/-10% of total stack value	Partial Success: Accuracy goes down with height
Software	Input: Game state inputs entirely simulated in software Output: game state, stack sizes, and pot size update correctly in the simulation	100% accurate simulation required; the simulation should update correctly given the inputs it receives	Success: 100% accurate simulation Success: 2:55 avg learning time
Overall System	Input: dealer software controls Output: servo position and updated game state, stack, and pot size to monitor display	After integration, the previous subsystem metrics hold and the display is updated within 5 seconds	Partial success: Integration was successful and the previous subsystem metrics besides CV hold

Trade Off Performance

Algorithm Type	Mean Stack Error
Checker Counting	17.38%
Blob Detection	44.56%

CV Algorithm	Stack Value	Mean Error in Percentage	Tests Ran
Checker Counting	\$46.00	6.49%	10
Blob Detection	\$46.00	25.47%	7
Checker Counting	\$84.00	8.68%	10
Blob Detection	\$84.00	30.61%	7
Checker Counting	\$150.00	18.48%	10
Blob Detection	\$150.00	47.29%	9
Checker Counting	\$210.00	22.46%	10
Blob Detection	\$210.00	52.38%	9