Demo Slides

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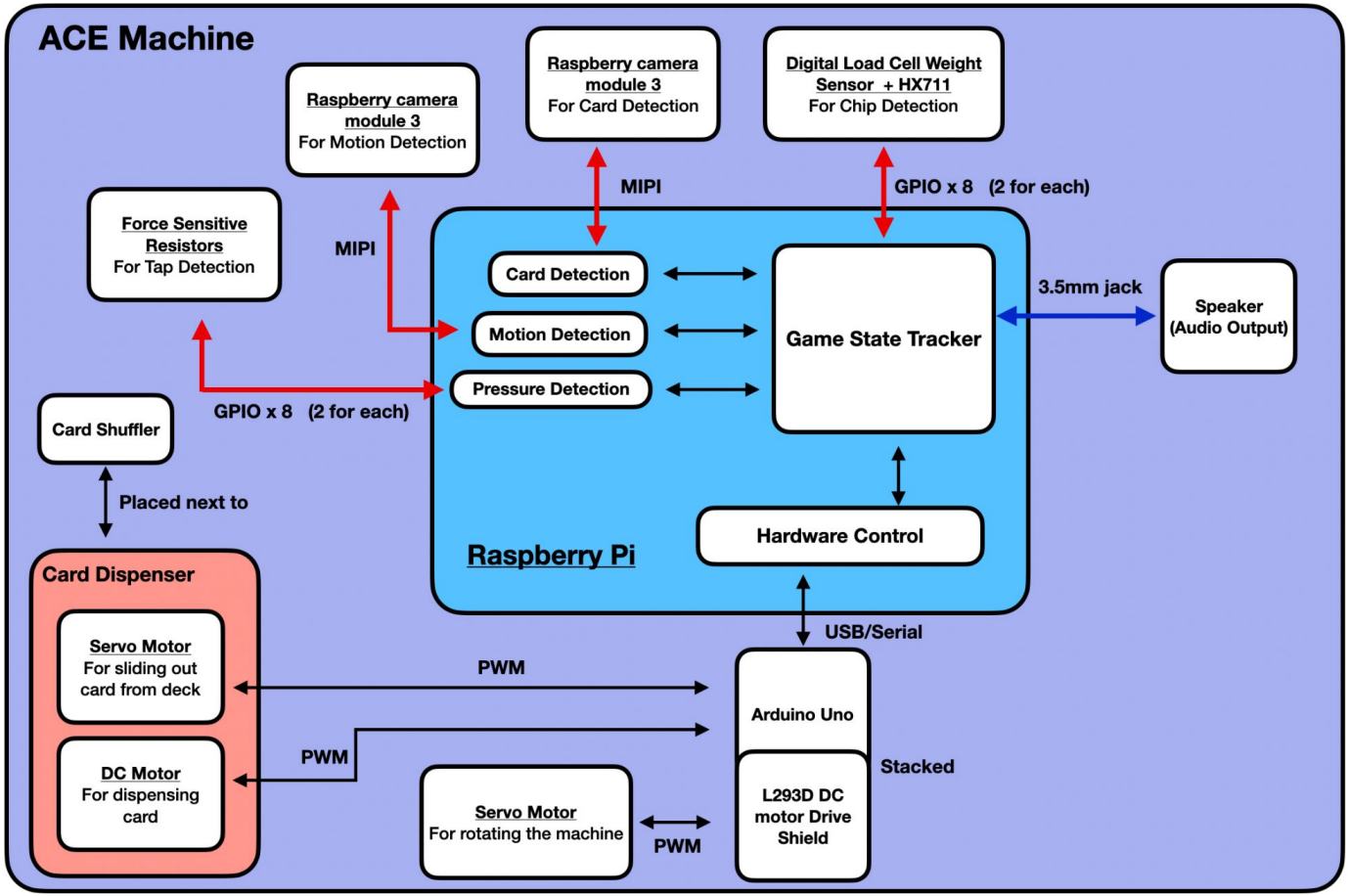
Use Case Requirements/Application

Problem

- Poker requires a Dealer
- Ruins fun & Reduces number of players - dealer

Solution

- A computer-vision assisted system that will automate the dealer's role in Texas hold'em poker games.
- Minimize requirement for player interference
- Seamless game play


ACE Machine
Raspberry camera module 3
For Motion Detection
Raspberry camera module 3
For Card Detection
Digital Load Cell Weight Sensor + HX711
For Chip Detection
MIPI
GPIO x 8 (2 for each)
Force Sensitive Resistors
For Tap Detection
MIPI
Card Detection
Motion Detection
Pressure Detection
Game State Tracker
3.5mm jack
Speaker (Audio Output)
GPIO x 8 (2 for each)
Card Shuffler
Placed next to
Raspberry Pi
Hardware Control
Card Dispenser
USB/Serial
Servo Motor
For sliding out card from deck
PWM
Arduino Uno
DC Motor
For dispensing card
PWM
Stacked
Servo Motor
For rotating the machine
PWM
L293D DC motor Drive Shield

NUMBER	TASK TITLE	TASK OWNER	Week 1					WEEK 2					WEEK 3					WEEK 4					WEEK 5					WEEK 6					WEEK 7					WEEK 8					WEEK 9					WEEK 10					WEEK 11				
			T	W	R	F	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F
1	**Hardware Components**																																																				
1.1	Parts selection and purchase	Andrew																																																			
1.2	Coding all three motors for functionality check (if it isn't faulty)	Andrew																																																			
1.3	Coding servo control for the dispensor	Andrew																																																		
1.4	Coding servo control for the rotation of machine	Andrew																																																		
1.5	Coding the DC motor in the dispensor	Andrew																																																		
2	**Computer Vision**																																																			
2.1	Parts selection and purchase	Martin																																																		
2.2	Connect camera module to RaspberryPi	Martin																																																		
2.3	Implement Card Detection on Raspberry Pi	Martin																																																		
2.4	Train CV algorithm using trump card dataset	Martin																																																		
2.5	Testing the component works properly	Martin																																																		
3	**CAD/ User Inputs**																																																			
3.1	Research	Justin																																																		
3.2	Parts Selection and purchase	Justin																																																		
3.3	Implementation: CAD	Justin																																																		
3.4	Cutting out the machine body using laser cutting	Andrew																																																	
3.5	3D printing dispenser	Justin																																																	
3.6	Implementation: User Inputs	Justin																																																	
4	**Integration**																																																		
4.1	Assembling 3D printed case of dispenser with motors																																																		
4.2	Integrating all parts																																																		
4.3	Testing/Trial and error																																																		
4.4	Integrating User Inputs																																																		
4.5	Slack Time																																																		

What’ve been done

- Card Detection (TESTED)
- Tap Detection
- Game State Management (TESTED)
- 1st and 2nd draft of 3D-printed dispenser body
- Laser-cut Machine Body (TESTED)
- Machine rotation with servo assisted with wheels (TESTED)

Things left…

- Motion Detection
- Completing Final Draft of Dispenser Body
- Integrating all parts into one product
- And testing…

Plan for next three weeks

Week1:

- Test the card dispenser (draft 2) and request 3D-printing for final draft
- Train CV model with a limited light and cards on dispenser

Week2:

- Rigorous testing on the card dispenser
- Integration of all parts

Week3:

- Slack Time
- Preparation for Final Presentation, Final Report, Final Video