r2 options for dealing cards

Radially

Linearly

User Input

Using buttons; options displayed on screen

(Whether the Jokers are in the deck (Specifies either 52 or 54 cards))

Number of players (1 to 10) (right left buttons)

Number of cards per player (1 to 52/numPlayers) (up down buttons)

Display options, depending on number of players

E.g. if 10 players: “Select the number of cards per player, from 1-5 cards”

E.g. if 7 players: “Select the number of cards per player, from 1-7 cards”

E.g. if 1 player: “Select the number of cards per player, from 1-52 cards”

Deal in a circle or in a line?

For circle outer circle certain colour, they from there drive to center red

Steps in program: linear

Start robot; drives forwards until reaches centre of table (indicated by a colour)

Prompts for user input

Jokers in deck?

Num players?

Num cards per player?

Deal in a circle or in a line?

For loop

Deals card

Drives forward

Goes back to start

Steps in program: radial

Start robot; drives forwards until reaches centre of table (indicated by a colour)

Prompts for user input

Jokers in deck?

Num players?

Num cards per player?

Deal in a circle or in a line?

For loop

Drives forward

Deals card

Drives back to start

Rotates

Useful functions

Configure sensors

Detect colour

Drive distance

Turn distance

Based on circle: adjust based on users

User input - determining number of cards per pile

Could split up into 4 smaller functions

Deal 1 card

Deal 1 pile (linear)

Uses deal 1 card function in a for loop

Drives, deals cards, continues forward

Deal 1 pile (radial)

Drives, turns, deals cards, returns to centre

Determine maximum number of cards per player

Dependant on number of players

One line calculation

Overview:

A card dealing robot which will play a game based on user input. Based on the game selected, the robot will adjust to deal accordingly based on the user. This robot will be able to deal either in a radial motion or in a linear motion. With the use of the colour sensor, the user will be able to select a game based on colour selected.With the use of the display and buttons, users can select whether or not jokers are in the deck, number of players and how the robot should deal.

Design Proposal & Requirements

Team 8-50: Rohan Sharma, David Szczecina, Chanuth Weeraratna, Marko Vehauc

Overview of Design

* The robot will deal cards according to user input. The user has 2 options for interacting with the robot. The first is manually inputting settings using buttons and the display, such as how many players to deal for, how many cards to deal per player, and whether to place the piles in a circle or in a line. Alternatively, the user can show the robot's colour sensor one of four colours to automatically deal from a set of pre-programmed settings.
* For example, the user may show the colour sensor a green card, and the robot will deal two cards to 4 players in a circle, and 5 cards in a line (1 card per pile) on the centre of the table, setting up a game of Poker.
* In another example, the user may navigate through the display using the buttons, and choose 6 players, 7 cards per player, dealt in a circle. The robot would then deal 7 cards in 6 piles, evenly spreading out the 6 piles in a circle.

Manual User Inputs

* Using buttons; options displayed on the screen.

Selections:

* Whether or not the Jokers are in the deck (Specifies either 52 or 54 cards)
* Number of players (1 to 10) (right left buttons)
* Number of cards per player (1 to 52/numPlayers) (up down buttons)
  + Display options, depending on number of players
  + E.g. if 10 players: “Select the number of cards per player, from 1-5 cards”
  + E.g. if 7 players: “Select the number of cards per player, from 1-7 cards”
* Deal in a circle or in a line?
  + drive to the centre, marked by the colour red and deal either in a circle or in a line

Steps (Linear)

* Start robot; drives forwards until it reaches the centre of the table (indicated by the colour red)
  + Specifically tape
* Prompts for the user input
  + Using the display and buttons
* For loop
  + Deals the cards
  + Drives robot forward
* Goes back to starting position

Steps (Radial)

* Start robot; drives forwards until reaches centre of table (indicated by the colour red)
  + Specifically, outer tape indicating the start of the “table” then the robot will proceed to the center (when the robot senses a certain colour).
* Prompts for user input
  + Using the display and buttons
* For loop
  + Drives forward
  + Deals card
  + Drives back to start
  + Rotates

Functions

* Configure sensors
* Detect colour
* Drive distance

**New Non-trivial Functions**

* Turn distance - Based on circle: adjust based on users
* User input - determining number of cards per pile
* Deal 1 card - Activates the extra motor for a specific period of time, which spins a wheel and dispenses a card from the deck
* Deal 1 pile (linear) - Uses deal 1 card function in a for loop
  + Drives, deals cards, continues forward
* Deal 1 pile (radial) - Drives, turns, deals cards, returns to centre
* Determine maximum number of cards per player - Dependant on number of players
  + One line calculation
* Colour selections 1-4 (4 different functions)
  + Executes a pre-programmed series of actions to deal cards in a specific way

Additional Parts

* Lego technic Parts (beams, X4, 1 X 12)
* Extra motor and wheel (for dealing cards)
* Potentially 3D-printed card deck holder
* 4 coloured cards