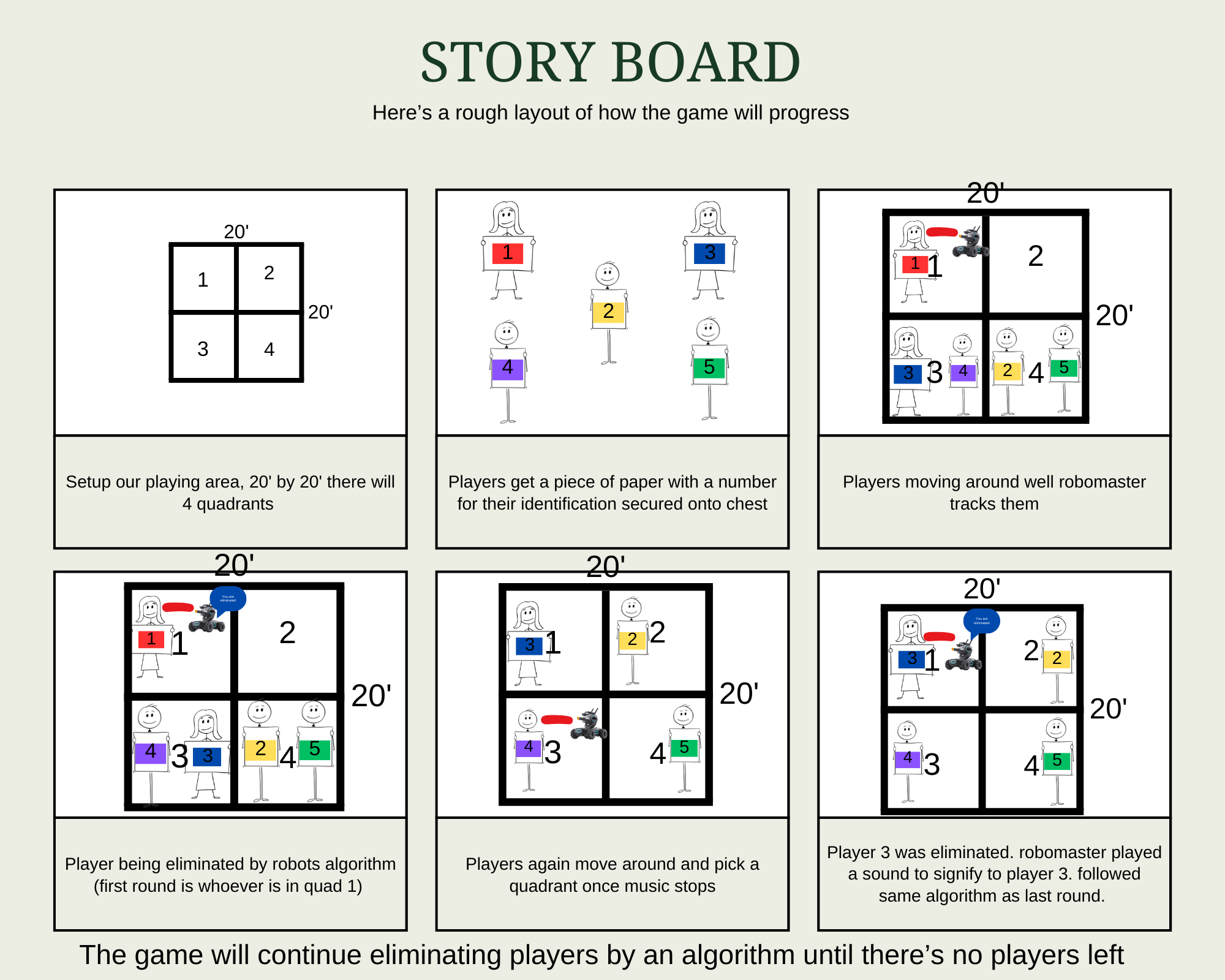
**Deliverable E**



**Layout for the game:**

20’ by 20’ area

2-5 players

Players will wear character cards E.g symbols / numbers that the robomaster can recognize

Game proceeds in rounds

Players will walk around the place space while the music is being played (there will be chairs setup). When the music stops players will stop in a zone, the robomaster will be triggered to scan the character cards once music has stopped. The robomaster will choose a player to eliminate by playing a sound and flashing lights. This will be based off of the code provided which may be something such as certain chairs are always eliminated or a certain number. Once a player has been eliminated the music will resume. During the times that the music is going the robomaster is tracking players with a red dot laser and is constantly moving almost like a patrol. Successive rounds of this will go on until there are no players left. For the first two rounds the robomaster will eliminate the players in column one. The idea is that the players think they figured out the algorithm and won't stand in that quadrant but then the robomaster’s algorithm will quickly become more random and choose a new quadrant where it will eliminate people, making the participants confused and aware of the ethical risks associated with AWS.

**2. Schedule for prototyping and testing:**

Prototype 1:

For the first prototype our main goal is to make sure we can get a sense that the overall concept is going to work.

1. The first task is to program the robot so that it can move around in all directions. This task will take roughly 2 hours and it will be done by Michael.
2. The next task will be to figure out how to code the laser and get that working. This will be done by Aj and will take around one hour to complete.
3. The next task for the first prototype is to ensure that the robot is able to track the participants while they are moving. This step will be completed by Alex and will take him one hour. All group members will be responsible for analysing the results when we are testing this prototype. We will use each analysis to improve in prototype 2.

Prototype 2: The goal for the second prototype is to improve on the first prototype and make our code more sophisticated and add more elements from the global concepts into the design.

1. Fix any bugs we had with the codes from prototype one, from the movement laser, or tracking. This task will be done by Michael and will take roughly one hour to complete.
2. The next task that needs to be completed in prototype 2 is to code the red dot laser to be activated and track the participant at the same time. This will be completed by Aj and will take around 30 mins to do.
3. The next task that needs to be completed for prototype 2 is that it has to be able to detect which quadrant the participants are standing in at the elimination time, and will choose which quadrant it is going to eliminate at the certain time interval. This task will be done by Alex and will take him around one hour to complete.
4. We need to import the audio file we are going to use for a musical chairs type of game. This will be done by Michael and will take roughly 10 minutes.
5. Next we need to add timers to the audio file so the music will play for a certain amount of time, then the music will stop signalling for the players to stop moving, then the robomaster will eliminate the player during the duration the music is paused. This task will be done by Aj and will take him 20 minutes.
6. We will then add code so when the robot eliminates someone it says “you are eliminated” as well as a sound when it fake shoots at the person. This will be done by Alex and will take him 10 minutes.
7. Set up the code so it runs through everything for the 5 rounds of eliminations. This will be done by Michael and will take roughly 30 mins to complete.
8. Next we will test all of the code in the online simulation to make sure everything works as it should. This will be done by all groupmates and will take around 30 mins each.

Prototype 3: The goal for Prototype 3 is to workout any final errors in the codes and make sure that all of the codes link together and the game functions start to finish properly

1. Combine the individual analyses from each groupmate and discuss what issue we may have found, and decide on what we will change together. This task will be done together and will take us around 30 minutes.
2. We then need to fix all of the bugs in the code that we find. This will be done by Alex and will take him around two hours to complete
3. Walk people through our online simulation and gather feedback on what they think works, and bits they think we should change up slightly. Ask them to say how they feel about AWS after just our simulation to gain a brief idea if our experience will meet the clients needs. This will be done by Aj and will take him roughly two to three hours to complete.

**Significant project Risks:**

1. The first significant project risk is that we do not finish/optimise the code in time for design day.

Contingency plan: In order to prevent this from happening we will use all of the time management skills we have learned in the course, by making to-do lists that have durations of the tasks, who they will be completed by, and when they need to be done. This will be planned so that everything is done well in advance to design day leaving us buffer time in case something very bad happens.

1. Not getting enough hands-on testing time with the robomaster s1. This could lead to risks of our code not working as we expected it to, and people not getting the best possible experience from our game.

Contingency plan: Before we do the physical testing with the robomaster we will do as much online simulation testing as we can to ensure that everything works good to get the best possible results when testing in person.

1. Code not working to demonstrate when a player is eliminated. The main goal of the experience is that everyone gets eliminated and nobody wins. So if the participants are unaware whether or not they are eliminated they won’t have a good experience.

Contingency plan: We will have multiple ways to signify when the participants are eliminated so that if one of the methods fails our game will still function. These include a sound effect of the robomaster firing its weapons well the laser is on you so you are aware it shot at you. Another way is after it shoots the robomaster will speak out “You are eliminated”.

**3 & 4 Materials and Budget**

For our project design, we have come up with a full list of materials that we will require in order to create and run our game. These materials consist of:

| Materials | Purpose |
| --- | --- |
| Small Speaker | We are waiting for confirmation about how loud the robot will be from the clients but for now we need a speaker to connect to the robot to amplify sounds when in the loud environment |
| Tape | For fastening |
| Paper | Our game concept will require spots for the players to choose and stand and these spots will be pieces of paper, also will be used for player cards |
| Coloured markers | We will colour the paper so players can choose a specific colour to stand at, also used for designing player cards |
| Computer | We need a computer to load and run software |
| Software for code | We need this software for building, editing and running our final code for the game |
| Robomaster S1 | We will have the actual main piece which is the robomaster that will run our code in the game |
| Robomaster omni wheels | Required for the Robomasters movement in our game |
| Robomasters camera | We need this for scanning for players (more specifically player cards) so it can track them |
| Robomaster laser | We need this piece to create a red laser toward the player cards it is following |

We have created a budget for all of these materials that we will require for our prototyping and final design of this project. The budget is found in this spreadsheet:

(can also be found in submission files)

[Deliverable E Budget - Google Sheets](https://docs.google.com/spreadsheets/d/13gcfOTl1KLVePR-R6UaD4ufRZbPTR_-iS_s4KLsGZiM/edit?gid=0#gid=0)

**5. Prototype test plan**

Our Prototype test plan has been laid out using the Prototype and Test Plan Template in this spreadsheet: (can also be found in submission files)

[Prototype and Test Plan Template.xlsx - Google Sheets](https://docs.google.com/spreadsheets/d/1w66JQsP3n7EAuIhhXrmzx0aBd1nQGbUe/edit?gid=330383338#gid=330383338)

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