

## Scurvy

**To:** Dr. Erik Hildinger  
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**From:** Omkar Moghe  
Developer

**Re:** Scurvy, a game to help kids with autism improve their communication.

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### Foreword

About one in one hundred and fifty children is diagnosed with Autism Spectrum Disorder. Many of these kids have impairments in their communication. They have a hard time recognizing social cues and communicating with their peers in general. We have been tasked to develop a game that supposed to help children with Autism Spectrum Disorder alleviate or work through certain aspects of the disability. Scurvy, my proposed game, is designed to help with communication skills and teamwork.

### Summary

Scurvy, the game I propose is a team based game developed in Python where the crew must communicate and work with each other in order to overcome obstacles and defeat enemies. Each player will receive instructions they must execute using their side of the keyboard as well as instructions that correspond to the other player's keys. Thus, they must keep an open channel of dialog to execute all the instructions and advance. Based on the selected difficulty, the game will implement background animations and music as added distractions to help children with ASD communicate and hold conversations both regularly, and through distractions.

### Discussion

Of the many children with Autism Spectrum Disorder, lack of communication is something that parents notice in the children from a very early age. Children become reclusive and often lag behind on language skills. This proposal outlines a game developed in Python with the PyGame libraries which will attempt to improve teamwork and social abilities in children with Autism Spectrum Disorder.

### *Object of the Game*

Scurvy is a multiplayer game where the players must work together in order to travel as far as possible. The players are pirates and together share control of a pirate ship. The crew must avoid obstacles and overcome various challenges which are only possible by communicating and helping each other out. Their ship will be able to withstand 3 hits and will sink if unable to pass 3

obstacles or enemies. Other possible distractions such as sounds or background activity will be added as the players' progress furthers to train the children to stay focused on the game.

#### *Game Play*

The main view would show the pirate ship on the ocean as it advances forward. Underneath, there would be two views – one for each player. Each of the players, or “crew members”, would have control of certain parts of the keyboard. The players' individual views would print out instructions that each member must do in order to defeat the enemy ships, monsters, and other obstacles. However, certain instructions that a player receives may not be accessible through their part of the keyboard, thus forcing the crew to communicate and work together to complete each task and prevent their ship from sinking.

Enemies and obstacles would include enemy pirate ships, kraken, and civilian ships that will non-violently disappear/sink when they are defeated. As the ship progresses, the players will have less and less time to communicate and complete the tasks and defeat the enemies.

#### *Controls*

Each of the two players would have control of one side of the keyboard. One would control the ‘port’ side which includes the Q, W, E, A, S, D, Z, X, and C keys. The other would control the ‘starboard’ side, or the number pad 0-9 keys. The instructions that appear on each player's view would be a combination of keys that they have and don't have access to. Thus, the players would have to work together to press the correct combination of buttons in the given time to advance.

#### *Customization*

Crews will be able to unlock different ships with more health and different colors as they progress. Players will also be able to choose their names. There will also be a high scores list with the crew names so players can track their progress over time.

#### *Benefit to Autistic Children*

Scurvy forces the crew of the pirate ship to communicate with each other and work together. The obstacles would be impossible if they did not. This will help children suffering from autism improve their speech skills as well as teach them team work. By playing with their peers, the kids will develop the ability to converse even through audio and visual distractions.

#### *Assessment*

Once Scurvy has been developed with satisfactory features it will be submitted to Dr. Chesney, the IAs and Dr. Hildinger to make sure the game works across multiple platforms and performs well without any bugs. The game should play as described and meet all the requirements set forth by this proposal and the project guidelines. If the aforementioned people determine that the game is acceptable and has passed the assessment, children with Autism Spectrum Disorder will be able to test out the game and play it. Ultimately, the true assessment of the game and its effects will be measured by how much it improves the lives of these children and alleviates the symptoms of ASD, if it does so at all.

*Development Timeline*

The major checkpoints in the development of Scurvy include initial documentation, game logic development, graphics design, heavy testing/debugging, code optimization/refactoring, and the release.

Initial documentation	Feb 13
Game logic development	Feb 13-18
Graphic design	Feb 18-21
Alpha release	Feb 18
Testing/Debugging	Feb 20-
Beta release	TBD
Final release	TBD

*Resources*

As the creator of this concept, I will determine the game play and structure of Scurvy. However, work will be evenly distributed based on the team members' skills and comfort. We will develop on both Windows as well as OSX using Python and the PyGame libraries to maintain cross platform support.