

UAT Plan

For

VentureArms

Index

| | |
|---|---|
| 1. Scope | 3 |
| 1.1. Objectives and business requirements | 3 |
| 1.2. Scope | 3 |
| 2. Testing team | 4 |
| 3. Environmental requirements | 5 |
| 3.1. Hardware requirements | 5 |
| 3.2. Software requirements | 5 |
| 4. Test Scripts | 1 |

1. Scope

1.1. Objectives and business requirements

My goal for this project is to create a working robotic prosthetic arm for David, who will use my robotic arm to pursue his chess career. I hope to accomplish a robotic arm that will allow David to play chess, while also being able to move quickly and freely throughout the game. It needs to be able to withstand the long lengths that chess games require, while also sticking strongly onto his arm. I will do this by putting an Ultrasonic sensor in the palm of the arm. When the Ultrasonic sensor gets in range of the chess piece, it will send a signal to the Servo motor, which will turn 180°. As well as this, I will add a time-limit to the Servo motor so that David can move pieces with speed. I will measure the success of the product by how quick and accurate David can move the pieces and how long it lasts in a regular game of chess.

1.2. Scope

This model of robotic prosthetic arm has been refined to be lighter and have increased accuracy when it comes to picking up the chess pieces. This will help David move and pick up the pieces faster.

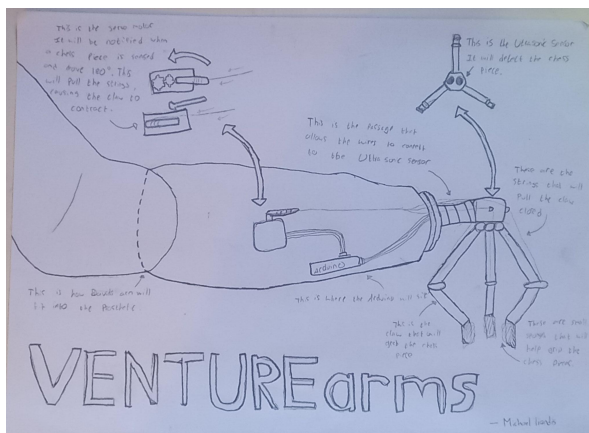
For this UAT test, we'd like to test:

- Does the Ultrasonic sensor system identify the chess pieces
- Does the system respond when started
- Does the Servo motor turn to close the fingers
- Does this new arm work more efficiently than Davids current one

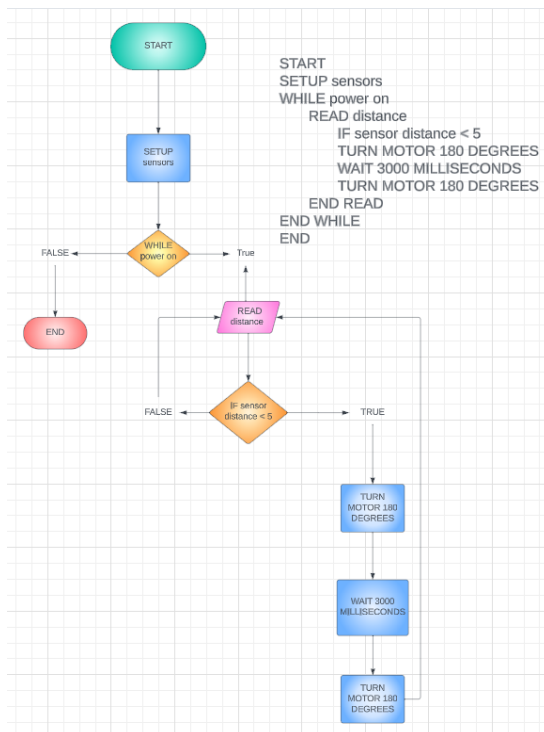
For this UAT test, we'd are not testing:

- If the arm provides more comfort than Davids current one
- If the arm helps win more games than Davids current one
- If the arm allows David to lift pieces better than his current one

1.3. System Diagrams



This is a pictorial of how the entire prosthetic arm will be made up. This shows the UAT team how the whole will look after the final iteration. It also shows where everything will be placed and how it will all fit together.



This is a flowchart of the code that is needed to run the Ultrasonic sensor and Servo motor. This will help the UAT team by giving them something to build off of when they are starting to build the prosthetic, along with the code.

2. Testing team

In this section, list out members of your QA team and what their roles will be during UAT.

| Name | Responsibilities |
|---------|--------------------------------|
| David | Using the finished product |
| Michael | Designing product |
| Owen | Testing the product iterations |
| Khanh | Testing products failures |
| Ismail | |

3. Test Scripts

| Test | Describe the feature being tested | Describe the user input or test data | Describe the pass criteria | |
|------|--|--|---|---|
| 1.1 | Sensor senses the chess piece below it | <ol style="list-style-type: none"> 1. User hovers palm over chess piece 2. Sensor senses the chess piece below it 3. User moves palm away from the chess piece 4. Sensor senses the chess piece is no longer there | <ol style="list-style-type: none"> 1. Sensor is able to sense the chess piece 2. Sensor is able to stop sensing the chess piece | Tester name: <input type="checkbox"/> PASS <input type="checkbox"/> FAIL Observations: |
| 1.2 | Servo motor turns 180 degrees | <ol style="list-style-type: none"> 1. Sensor senses the chess piece 2. Sensor sends a signal to the servo motor to turn 180 degrees 3. Sensor stops sensing chess piece 4. Sensor send a signal to servo motor to turn 180 degrees | <ol style="list-style-type: none"> 1. Servo motor is able to turn 180° when chess piece is detected 2. Servo motor is able to turn 180° when chess piece stops being detected | Tester name: <input type="checkbox"/> PASS <input type="checkbox"/> FAIL Observations: |
| 1.3 | Claw contracts and expands | <ol style="list-style-type: none"> 1. Servo motor turns 180° 2. Servo motor pulls string, contracting the claw | <ol style="list-style-type: none"> 1. Claw is able to contract when the string is pulled 2. Claw is able to expand when the string is pulled | Tester name: <input type="checkbox"/> PASS <input type="checkbox"/> FAIL Observations: |

| | | | | |
|--|--|---|--|--|
| | | 3. Servo motor turns 180°, returning to the claw to its previous position | | |
|--|--|---|--|--|