**SCOPE AND LIMITS**

Project needs:

The needs for the project are skills in python3 software development and raspberry pi programming specifically around rs232 communications.

Project Objectives:

The team would like learn the basics of the python3 programming language well enough to achieve the development of a well thought out useable graphics user interface using the tkinter module, the team would also like to work out how to correctly communicate with the socapel servo motor drive in its simplest form using a laptop before proceeding to the development of communication techniques of a raspberry pi. This will allow the team to get experience with the pyserial module without having to convert it to raspberry pi IO commands.

Through these project objectives the team will be able to get feedback both visually through the testing and development of the graphics user interface as well as confirming that the communication techniques are working correctly with the socapel servo motor drive before proceeding to later stages in development of the project as a whole. These steps would give us realistic objectives, would allow us to deliver these processes on time and would be realistic.

As a time frame the team expects to have the required python3 and pyserial skills within 4 weeks, this would allow the team 6 weeks to fully develop and test all aspects around the graphics user interface as well as the communication techniques for communication with the socapel servo motor drive.

Project Scope Description:

The aim of the project is to provide a raspberry pi based portable data loader for socapel servo motor drives that will provide fast easy reliable programming and reduce the down time of the electrical maintenance team.

By reducing the time taken by the electrical maintenance team when programming the socapel servo motor drive, this will allow the team to allocate their time and resources in more important areas of maintenance.

The team indents to create a well-thought-out user-friendly graphics user interface, reliable serial communications, design it without the need for propriety software and without the need for continues software updates.

The raspberry pi-based servo motor drive programmer will include:

1. User friendly graphics user interface
2. RS232 ASCII data reading & writing
3. Drive parameter storage
4. Portability

Expectations and acceptance:

The team expectations for the project are based on the portability and current visual layout and positioning of the socapel servo motor drives. The team hopes that this will give greater acceptance from the team that will be using the product, make it simpler and easy part replacement as the parts are readily available and this will reduce the costs for the management team. We will be advising and working with the maintenance and management team to ensure that all areas are well tested, feedback is taken so any alterations can be achieved without to much effect and the product can be delivered on time.

Constraints:

The team constraints will be around the ability to learn enough python3 programming language, tkinter module and the pyserial module in 4 weeks, the constraints will also be around sight access for testing as it is usually tested within working hours. Another constraint that is a possibility is the time taken for parts orders around the raspberry pi and these will need to be ordered in advance to ensure that parts arrive before or on time.

Changes:

The team will need to deal with changes along the line, the team hopes to be able to minimise the impact of these by developing the software in a more structured way. The team will need to ensure that each part of the software be development as its own unique module, this will allow only one part of the software to be modified, leaving the others untouched, this will be achieved by tying them all together in a main program.