

Comp3402 Nature of Computing Assignment Brief (PP1 – part2)

This document will be discussed in class, voice recorded and uploaded.

You will write a position paper based on your work on Robot line following and Robot Object detection.

You will draw on your worksheet material, including **observations** your robot when you have coded its controller. You should **annotate your code** making sure you **explain** how it works and what it does. This should be done referring to your observations of the robot behaviour.

You must include **references to journal articles**, and in addition you should provide evidence of having a '**learning conversation**'

You may choose to write the paper in an 'essay' style without any headings, or you may structure your paper with headings, like a report.

Please look at the assessment matrix. Make sure you have included in the main body of your text: (i) annotated code (your Tutor will explain the best way to do this), (ii) observations of your robot, these could be still photos or YouTube movies with narration, (iii) a section 'References' where you list journal articles which you cite in your text.

One way of including journal articles is to write a short introduction paragraph where you outline what is to follow in your paper and cite the articles there.

Finally, you need to present evidence of a 'learning conversation'. This could be a conversation with a fellow-student or even a group, where you discuss how you solved a particular problem. This could be presented as either (i) a transcription of a conversation, (ii) link to a voice recording of a conversation, (iii) a YouTube clip of the conversation.

When you make a learning conversation with a fellow-student or a group, all participants are allowed to include the same conversation in their position paper.

Grade	Knowledge and Understanding		Autonomy in Learning	Communication
	Annotated Code	Critical Evaluation	Journal Article	Dialogic Learning
%	30	40	10	20
A	Annotated code is both comprehensive AND detailed	Evaluation is both comprehensive AND detailed	Journal articles expand OR enhance the workshop material.	The conversation shows shared thinking AND exploratory talk.
B	Comprehensive OR detailed annotated code.	Comprehensive OR detailed evaluation.	More than one relevant journal article presented.	The conversation shows shared thinking OR exploratory talk.
C	Annotated Code presented.	Critical evaluation of how robot behaviour and code are related.	One relevant journal article presented.	A learning conversation is presented

One possible Structure



The LO Assessed for this Position Paper Part is as follows:

“Reflect, critically on alternative and emerging computing technologies.”

INTRODUCTION

So, the starting point is that robot vision is an *emerging computing technology*, in other words it is currently the focus of much research, and industrial and commercial applications. Your journal citations could refer to one or more of these, and **you could place this in the introduction to your paper**. You may want to research how companies such as Amazon use robots in their ‘fulfilment centres’, or how robots can be used to ‘drive supply chain innovation’.

An alternative approach could be to discuss the limitations of native Arduino technology to process images, and how a co-processor such as PixyCam can solve these.

I would expect perhaps half a sheet of A4, though you may choose to write more.

BODY

The main body of your paper will be ‘technical’ where you draw on the material seen in the sessions. The assessment matrix says that you have to annotate your code and explain how this is related to robot behaviour.

Here is a suggestion how you could use the session worksheet material

Worksheet Movement Calibration: *Explain how you coded the robot to move a given distance and rotate a given angle.*

Worksheet Scan to Object: *Explain how you used the turret to scan for and locate an object and rotate towards it.*

Worksheet Line Following: *Explain how you coded the controller, if possible, using Kp and Kd*

Barcode Control: *This is open-ended and could be used to great effect.*

Also, you have been dealing with *real* robots and you may have encountered issues or problems. If so, you may like to include this material in your **learning conversation**.

FINALE

A short conclusion (perhaps a quarter of a sheet of A4) where you bring your paper to an end. A perfect finale would be linking your workshop activities with your introduction (literature). Or you could reflect on the concept of a **learning conversation** – did this help you?