# Weekly Report One

**Date:** Oct 19, 2019
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**Course:** CSC461 Course Project

## Title:

Primarily research of multimedia system on Picar  Mars Rover

## Description:

Our purpose is to understand how the multimedia system can use in our real world and use technology in our daily life special in vehicles. Firstly, we need to do some basic research on which multimedia system is using on the Picar, and to understand how the system is used for the robot car.



## Process:

Basic on our research we found the Picar contains several modules, for example, camera, microphone, and ultrasonic sensor module. So, this robot car able to use the camera to track the real-world situation and we can use the OpenCV library to track the object and the specific shape or colour. Furthermore, we able to write an AI program to make this car become an AI robot and it can run by its module sensor to track the road and to avoid obstacles ahead and find a possible path for a move.

Secondly, we can use the microphone system and the Python SpechReconition library to accept the human voice as a command to control the robot car is moving forward or

backward. Therefore, we need to set up the program and study how the library work with the microphone system.

In the future study, we want to combine the line tracking module, ultrasonic sensor, and camera together to make them can cross data and share the data with each other, then simulate an auto-driving robot car.



ws2812 LED

Tracking Module

Raspberry Pi Camera

USB microphone

gear motor

coupler

bevel gear

RGB LED

Ultrasonic Module

## Technical challenges met:

Through some basic investigations, we have learned some basic modules that make up the Picar multimedia system. But our understanding of all the procedures is still only at the stage of online investigation, which is not enough.

## solved and remaining:

We decided to purchase the complete set of accessories and system motherboards, and then make this research change from online surveys to real testing and research. We know that we may encounter many real problems, but we believe this will be a process of truly understanding the practical application of multimedia technology.

## Conclusion:

We understand this robot car has many useful multimedia modules, and we able to combine them together to simulate an auto-driving system and use it to study how the multimedia system can use in real-world vehicles.