# Project AstroPI

Since the enviroment in the space is quite different from that of the earth (e.g. micro gravity conditions) the aim of the project is to use Artificial Intelligence and Machine Learning to acquire data about behaviours of astronauts in the spaceship.

We will capture how many times the astronauts look at the Raspberry Camera to check their attention level and we will also track their movements and their paths in the spaceship. In addition some reaction games on Sense-Hat will be also available to check their reactivity in extreme conditions.

When a face movement will be detected, Raspberry board will show an overview about spaceship conditions such as temperature, relative humidity, pressure and current time. This information will be saved on Raspberry memory for future analysis.

For movement and facial detection a "NoIr" camera will be used with special libraries such as "*opencv"* and *"dlib" in order* to scan images in real time and save information in a spreadsheet. None of the images will be saved in memory to ensure the privacy of astronauts.

The code of the project will be carried out in Python with some libraries in C and C++ in order to use CPU in more efficient way in demanding activites like face recognition and paths mapping. Games will be developed in Python but we will do a lot of multi threading optimization to reduce power usage as much as possible from Raspberry CPU.