Project Number - 12a

Subject:	Commanding MiRo with natural language [Project 12a]
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Estimated group size	6 students
Equipment:	**MiRo**
Description:	**Experimental setup**: Consider some <u>small</u> objects (sphere, box, cone etc.) kept around MiRo. **Objective**: MiRo starts listening for a key-phrase when it hears the word "MiRo!". As it hears a key-phrase (e.g., "go close to the ball", "go close to the small green ball" etc.), it converts speech to text and understands the key-phrase using Google's DialogFlow. MiRo then recognizes the object of interest, it's colour and the action that MiRo needs to take with respect to that object of interest. As MiRo executes an action, emotional-colors on MiRo (i.e., behaviour of MiRo) allow the user to know (i.e., get feedback) about whether (1) MiRo understood the command, (2) is executing the action, and (3) has completed the action or not. Once the action is executed, MiRo goes into a state of 'natural social behaviour' while it waits for a new command. While it does an action, it's not necessary for MiRo to know its own location, i.e., MiRo simply move based on its vision. MiRo's movement can be supported by 'overriding' it using teleoperation from a keyboard. SDK of MiRo (https://github.com/EmaroLab/MiRo-training). Architecture of previous SofAR project (https://github.com/buoncubi/speech_based_teleop_commander). Speech to Text (https://cloud.google.com/speech-to-text/)(https://github.com/buoncubi/speech_based_teleop_commander) and DialogFlow(https://dialogflow.com/). MiRo behaviour (https://github.com/EmaroLab/miro_behaviour_config) and ROS state machine (http://wiki.ros.org/smach).