

DEVELOPMENT OF MOTION CONTROLLED MODULE INSTALLABLE ON MANNED/UNMANNED VEHICLES FOR USE IN UNSAFE ENVIRONMENTS

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1. Introduction

With the ever-growing presence of technology and, in turn, electronics, in more and more fields around us, replacing humans with machines comes as a natural consequence. This is especially true in environments where human lives are in danger and the use of robots is at least morally justified. Although such machines can outdo humans in almost every aspect there is, something electronics cannot actually hold the candle to us is our data acquisition methods, memory and experience. This is the reason that we decided to develop this device, in order to better connect humans to the machines they use.

2. Methods and results

Our device is comprised of a video camera mounted on a setup with gears for the X and Y axes. These gears are connected to electric motors, in order to be actioned. By understanding the types of data recorded by the accelerometer/gyroscope device (the acceleration it reaches on all axes and the speed of its tilt), we are able to send different signals via the microcontroller to the motors in order to orient the camera setup however we desire.

The first step to achieving this was to control the setup directly using the sensor by tilting it while the microcontroller was connected via wires to the other components of the project.

The next step we hope to reach within the foreseeable future is creating a proprietary VR-style helmet (or salvaging an already existing one), using that as an HUD to the camera and programming the setup to move, replicating the head movement of the user.

3. Conclusions

One clear conclusion all three of us were able to observe is that our project, even though it's nothing new on any market, can do something better than anyone already producing such modules.

The second thing is that our product can become modular, being able to fit different types of setups, both produced by us and under license. That is, obviously, if we reach the production stage.