

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PARROT S.A. and PARROT, INC.
Petitioners

v.

DRONE TECHNOLOGIES, INC.
Patent Owner

Case IPR2014-00730
Patent 7,584,071

**DECLARATION OF INVENTOR JAY SMITH, III
IN CONNECTION WITH PATENT OWNER'S RESPONSE TO
PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 7,584,071**

CASE IPR2014-00730

Drone Technologies, Inc. – EXHIBIT 2014

Parrot S.A. and Parrot, Inc. v. Drone Technologies, Inc.

1. My name is Jay Smith, III. I am Chief Executive Officer of Symmpl, Inc. and owner of Smith Engineering. I am also the inventor on over 40 U.S. patents, including U.S. Patent No. 5,043,646 (“the Smith Patent” or “my Patent”). I have been asked to explain what is, and is not, disclosed in my Patent in order to assist the Patent Office. I am more than competent to do that. All statements made of my own knowledge are true, and all statements made on information and belief are believed to be true.

2. My technical background is as follows. I hold a B.S. from Virginia Polytechnic Institute and State University (Virginia Tech) in Applied Mechanics, and an M.S. in Engineering Mechanics from the California Institute of Technology (Cal Tech). I serve on the advisory board to the College of Engineering for Virginia Tech, and am honored to have been named as one of 50 Distinguished Engineering Alumni. I have attached a copy of my resume, Attachment A.

3. For over 40 years, I have worked on a wide variety of inventions and products, including toys and video games. For example, my U.S. Patent No. 5,043,646 describes a remote control transmitter/receiver system for use in controlling a hobby vehicle, “without being concerned about the orientation of the remote control transmitter . . .” Col. 3, lines 51-60.

4. I understand that my Patent is being considered by the U.S. Patent Office as prior art in connection with these proceedings. I have been asked to describe what is and is not disclosed in my Patent. I believe that I can offer valuable insights. I hope that my input will be helpful to the Patent Office in better understanding what my Patent discloses, and what it does not disclose.

5. I am being compensated at my typical rate of \$200 per hour for technical consulting, and \$300 per hour if I am required to testify. My

compensation does not depend on what is contained in this declaration, any testimony I might offer, or on the outcome of the proceeding before the U.S. Patent Office.

6. First, I will explain the problem that we set out to solve with the invention disclosed in my Patent. Next, I will then explain how we solved the problem through the invention disclosed in my Patent. Finally, I will explain some aspects of our invention that I believe will provide the U.S. Patent Office with useful perspective.

The problem we set out to solve.

7. Remote-controlled model car systems typically include two main components: a remote controller and a remotely controlled device, for example, a car. The remote controller commonly includes what we referred to in my Patent as “a user-operated means” (typically a joystick) for selecting a direction for the car to travel. Col. 1, lines 22-28. Based upon the direction that the joystick was pressed, the remote controller sends a direction control signal to the model car to cause the car to move in the direction indicated by the joystick. Col. 1, lines 22-28. A user can command a remote-controlled car to turn in a direction, such as “left” or “right,” using the joystick, and the car responds accordingly.

8. While this seems like a simple task, it becomes more complicated when considering real-world scenarios. For example, where the car is travelling away from the user, moving the joystick to the left would send a “left” command signal which would cause the car to turn left. In that situation, the command signal and the resulting direction of the car will match. Col. 1, lines 49-56.

9. In my Patent, we addressed the problem that arises, for example, when the car is travelling toward the user. In that situation, if the user moves the joystick to the left in order to send a “left turn” command signal, the car would not turn left relative to the user, but rather would turn right. Col. 1, lines 57-64.

10. This problem becomes even more complicated when the user is not stationary, and the car is moving, so that the position and direction of the car relative to the user are constantly changing. Col. 1, lines 40-48. The result can be a very unintuitive (and unintended) situation for the user of the remote-controlled car.

The invention disclosed in the Smith Patent.

11. We solved this problem by providing a remote-control system that was intuitive for the user. Specifically, we invented a system that was capable of generating a “direction control signal” that contained direction control (i.e., heading information) relative to an external reference direction, specifically magnetic North. Col. 2, lines 5-9. The invention allowed the user to send an absolute direction command (i.e., the direction control signal) to the remote-controlled car “without considering the orientation of the remote control transmitter or the remotely controlled device relative to the external reference direction.” Col. 1, lines 14-17.

12. To accomplish this, we used a flux gate compass in both the remote controller and in the remote-controlled car. Col. 3, line 61 - col. 4, line 2 and Figure 3 (remote controller); col. 5, lines 48-61 and Figure 4 (remote-controlled car). A flux gate compass is basically an electronic compass which allowed us to determine orientation around the vertical axis (commonly referred to as the “Z-axis”) with respect to magnetic North.

13. In my explanation here and in my Patent, I use the terms “orientation” and “motion” to represent different and distinct ideas. To me, as someone skilled in the art of designing control systems, “orientation” means the direction in which an object is pointing at a particular point in time. For “motion,” an object must change its position, its orientation, or both, over time. Orientation alone isn’t a type of motion; it would require a change in orientation to be considered a form of motion. Unlike “orientation,” which is a direction an object is pointing at a particular point in time, “motion” requires a comparison of the positions and/or orientations of the object at multiple points in time to determine if there has been a change (indicating motion).

14. In my Patent, we were only concerned with the orientation of the joystick with respect to magnetic North in generating the direction control signal. We accomplished this by determining the direction that the joystick is pressed with respect to the remote controller and the instantaneous orientation of the remote controller with respect to magnetic North. By adding these two values, we had the heading (0 to 359 degrees) for the direction control signal. Col. 5, lines 14-31. We did not retain or use the orientation of the remote controller after we sent the direction control signal.

15. The direction control signal utilized an external reference frame (i.e., with regards to magnetic North) by representing the direction that joystick was pressed relative to magnetic North. Col. 5, lines 10-12. The remote controller also included a switch that registered a “drive” signal that represented the user’s command for the car to go either forward or backwards. Col. 5, lines 14-17. Those two components (joystick orientation with respect to magnetic North, and drive) make up the substantive portion of the command signal that is sent by the remote

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