

# Wide Angular Range Dynamic Projection Mapping Method Applied to the Projection on a Flying Drone.

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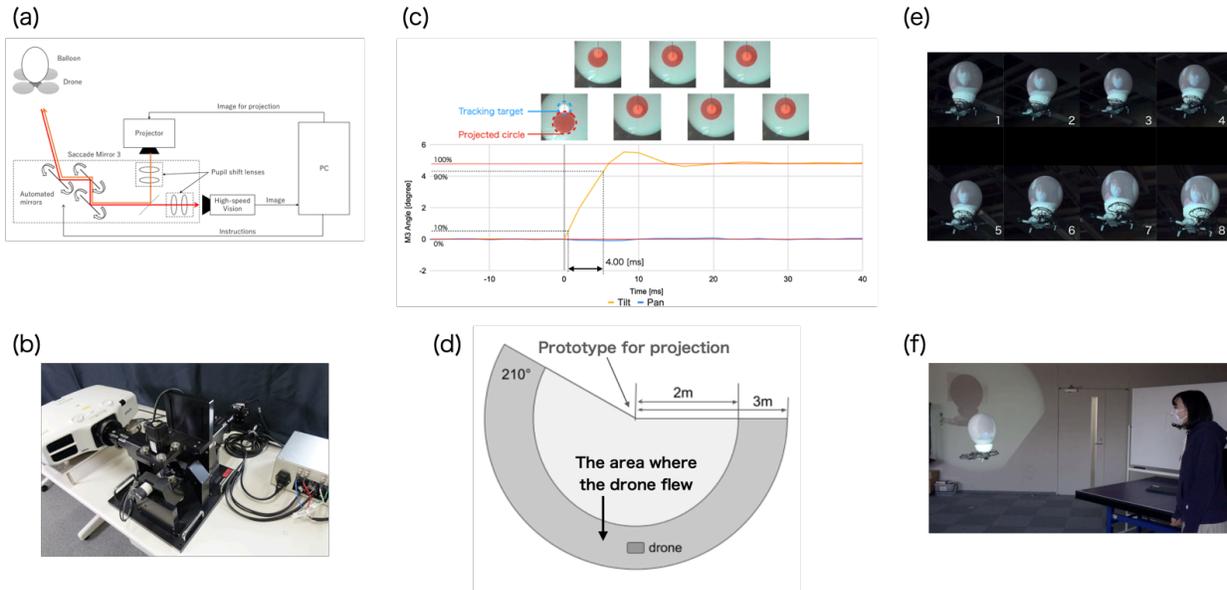


Figure 1: (a) System connection. (b) Photo of the prototype system. (c) Step response in tilt direction with the frontward initial gaze direction. (d) Schematic figure of the area where projection was possible. (e) Sequence of photographs of projected image on a flying drone in the projection experiment over 180 degrees in pan angle. (f) Communicating with remote locations.

## ABSTRACT

In this study, we proposed a method to realize dynamic projection mapping on a target moving at high speed in a wide angular range around the projection equipment using a high-speed gaze control system, and actually implemented and evaluated it. We also combined the proposed system with a teleconferencing system, and conducted an experiment in which a drone was used as an avatar robot for communication with remote locations.

## KEYWORDS

Dynamic projection mapping, Drone, High-speed gaze controller, Avatar robot

## ACM Reference Format:

Shino Higuchi and Hiromasa Oku. 2021. Wide Angular Range Dynamic Projection Mapping Method Applied to the Projection on a Flying Drone.. In *Special Interest Group on Computer Graphics and Interactive Techniques Conference Posters (SIGGRAPH '21 Posters)*, August 09-13, 2021. ACM, New York, NY, USA, 2 pages. <https://doi.org/10.1145/3450618.3469137>

## 1 INTRODUCTION

In recent years, dynamic projection mapping has been attracting attention. In conventional projection methods, the range of angles that can be projected is limited when images are projected by a fixed projector. In this study, we proposed a method to control the projection position in a wide range of angles at high speed by combining a high-speed optical gaze control system, a projector, and a high-speed vision system, and evaluated the performance of a prototype system. In addition, as a promising application of the proposed system, we demonstrated the possibility of using drones as avatar robots by using the developed prototype in combination with a teleconference system.

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SIGGRAPH '21 Posters, August 09-13, 2021, Virtual Event, USA  
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ACM ISBN 978-1-4503-8371-4/21/08.  
<https://doi.org/10.1145/3450618.3469137>

