Robot for Ball Fetch-and-Carry with Computer Vision in Deep Learning

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Abstract—**A robot which functioned as fetch-and carry ball sever was implemented. The structure of this robot are (1) Raspberry Pi for processor; (2) a camera for computer vision; (3) a 4-wheel model car for carry; and (4) robot arms for the mechanism of fetching ball. The computer vision in deep learning technology makes the robot pick the balls quickly. For the safety, the navigation and anti-collision modules were embedded in the robot. The results presented that the number of successful fetch-and-carry is in the range of 69 to 88 times in the competition of working in 100 minutes to pick the table tennis balls. Therefore, the technology can be developed to be a fetch-and-carry server for other balls in the near future.**

Keyword—**AI, ball, deep learning, fetch-and-carry, Raspberry Pi, robot**

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