The 2012 UT Austin Villa Code Release

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Abstract. In 2012, UT Austin Villa claimed the Standard Platform
League championships at both the US Open and the 2012 RoboCup
competition held in Mexico City. This paper describes the code release
associated with the team and discusses the key contributions of the re-
lease. This release will enable teams entering the Standard Platform
League and researchers using the Naos to have a solid foundation from
which to start their work as well as providing useful modules to exist-
ing researchers and RoboCup teams. We expect it to be of particular
interest because it includes the architecture, logic modules, and debug-
ging tools that led to the team's success in 2012. This architecture is
designed to be flexible and robust while enabling easy testing and de-
bugging of code. The vision code was designed for easy use in creating
color tables and debugging problems. A custom localization simulator
that is included permits fast testing of full team scenarios. Also included
is the kick engine which runs through a number of static joint poses and
adapts them to the current location of the ball. This code release will
provide a solid foundation for new RoboCup teams and for researchers
that use the Naos.

Keywords: RoboCup, Nao, SPL, UT Austin Villa

1 Introduction

Developing intelligent behavior for robots is difficult due to the time and effort
needed to create and debug code for robots. This code release attempts to reduce
that burden for researchers that use humanoid robots. Specifically, it contains
the code from the UT Austin Villa team that competes in RoboCup, the Robot
Soccer World Cup. The international research initiative behind RoboCup pushes
towards advancing robotics and artificial intelligence by using the game of soccer
as a test domain. Soccer requires robots to deal with real world issues such as
teamwork, localization, motion, and vision all in real time while interacting with
an environment that is not under their control. The long-term goal of RoboCup
is to build a team of 11 humanoid robot soccer players that can beat the best
human soccer team on a real soccer field by the year 2050 [5].

RoboCup is organized into several leagues, including both simulation leagues
and leagues that compete with physical robots. This paper describes the code