Shepard Test Stand

An open source project of Mach 30: Foundation for Space Development

The **Shepard Test Stand** is an open source test stand for Estes rocket motors. This project is the first in a series of open source projects to develop the required skills for the practice of safe rocket engine operation, and to develop the capability to measure and record data about a rocket engine's performance. The use of Estes class motors provides a relatively safe environment to learn in before moving to higher powered motors and engines. The ultimate goal is to develop test stands for full scale liquid rocket engines for use in orbital launch systems.

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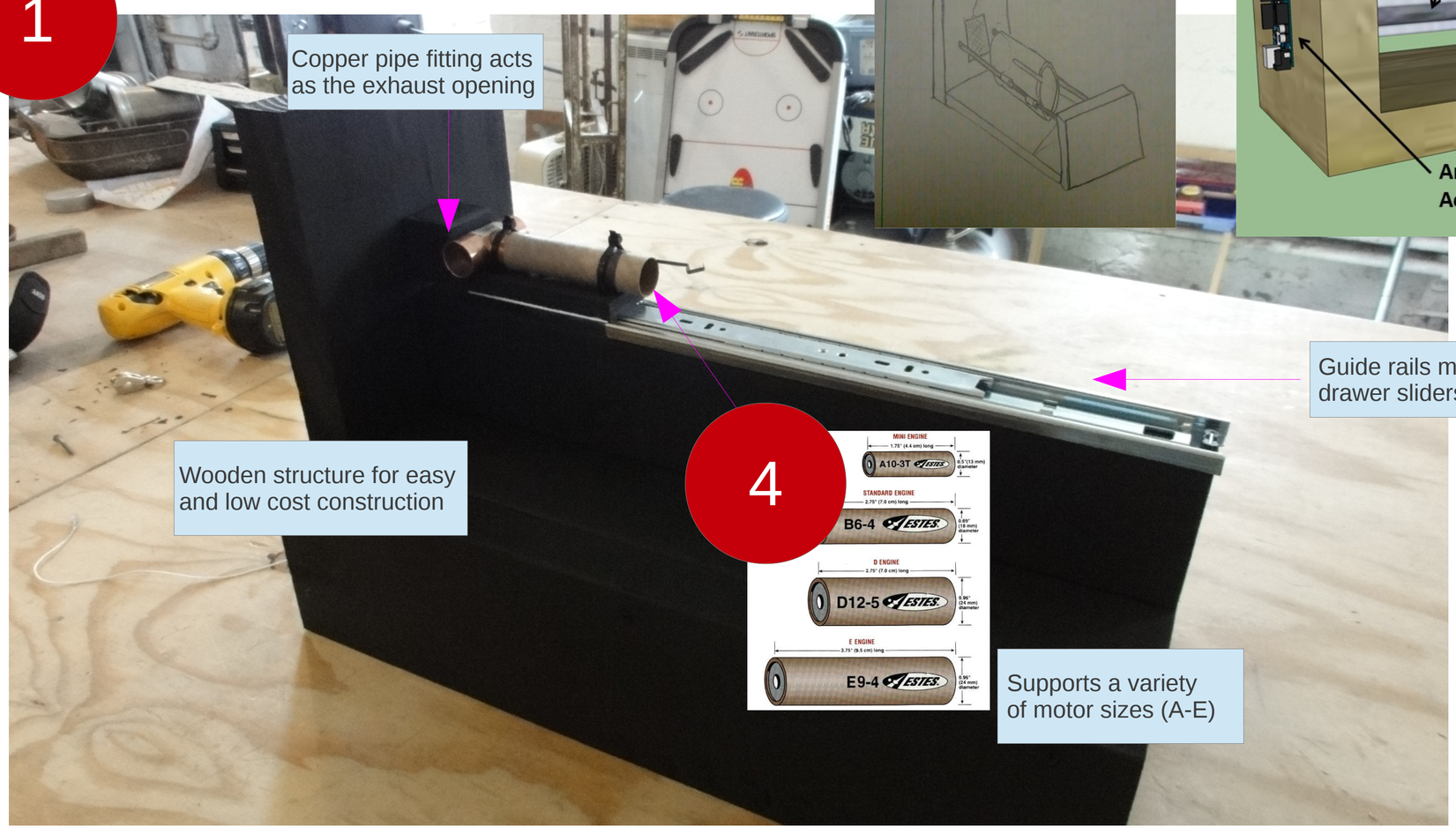

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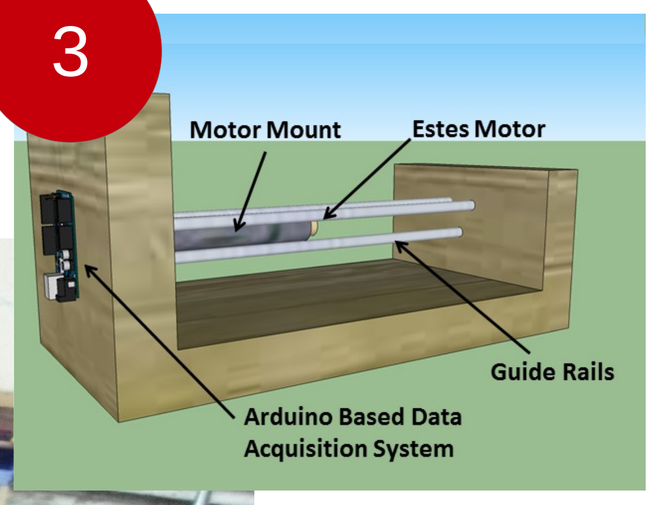

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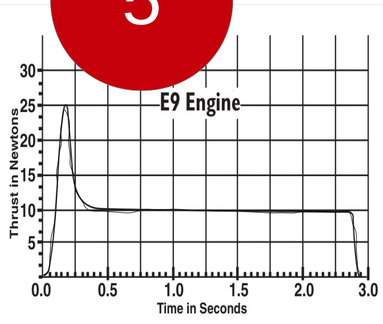

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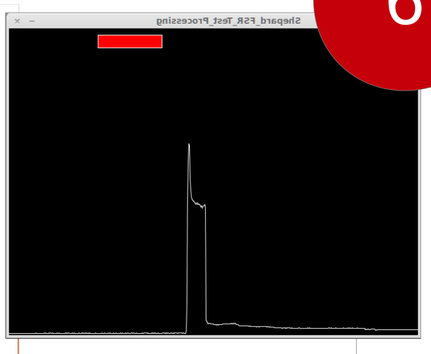

Test Process:
Thrust measurements are taken from a force sensing resistor, and motor casing temperature measurements are recorded by a thermocouple. All data is captured by an Arduino Uno and saved to a file on a laptop.

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Results:
The goal of the Shephard test stand is to verify the performance of small commercial rocket motors. The two plots above show the published "thrust vs. time" data and the thrust recorded from the Shephard test stand. It is a good sign that the shape of the curves match. Additional calibration is needed

You too can **build your very own** Shephard Test Stand!

Project prototype documentation can be found on
Open Design Engine
at: <bit.ly link>

- Licensed under the Mach 30 ODP
- Designed by Mach 30 Volunteers
- four states
- at Day in Ohio
- d at Clu a, In Indiana

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MACH 30
Foundation for Space Development
www.mach30.org

"ad astra per civitatem"
"to the stars through community"

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Poster design credit: Thanks to the Mercenary Art Ninja, Rebekka McGrady!