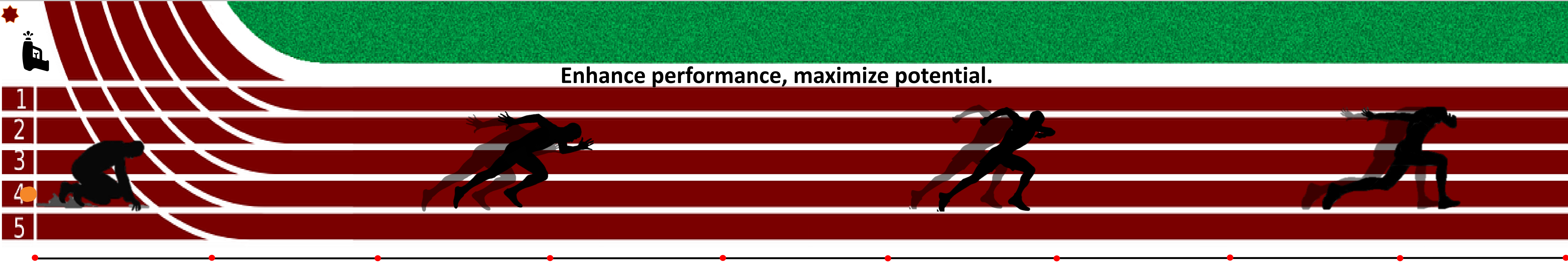


Team T521: Sprinter Data

Dylan Cedeno, Marc Griffiths, Jordan Noyes, Handy A Pierre, Edwin Ulysse



Objective:

The objective of this project is to create a desirable product that will objectively measure and predict a sprinter's performance

Future Work:

Polishing of Measurements
May-June

Incorporation of Professionals
June-July

Creation of User Interface
July-August

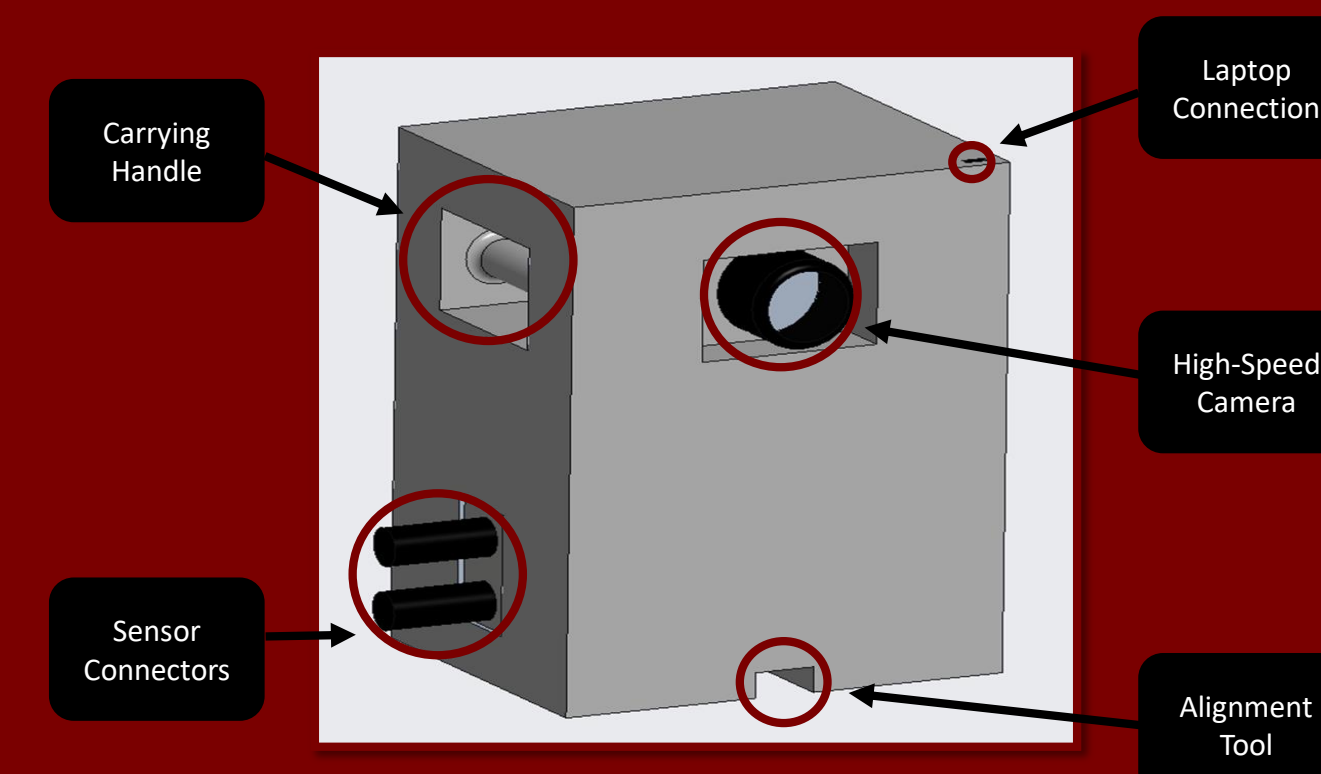
Acknowledgements:

Dr. Michael Devine
Dr. Jonathon Clark
Coach Ricardo Argro
Michael Ormsbee

Experimental Design:

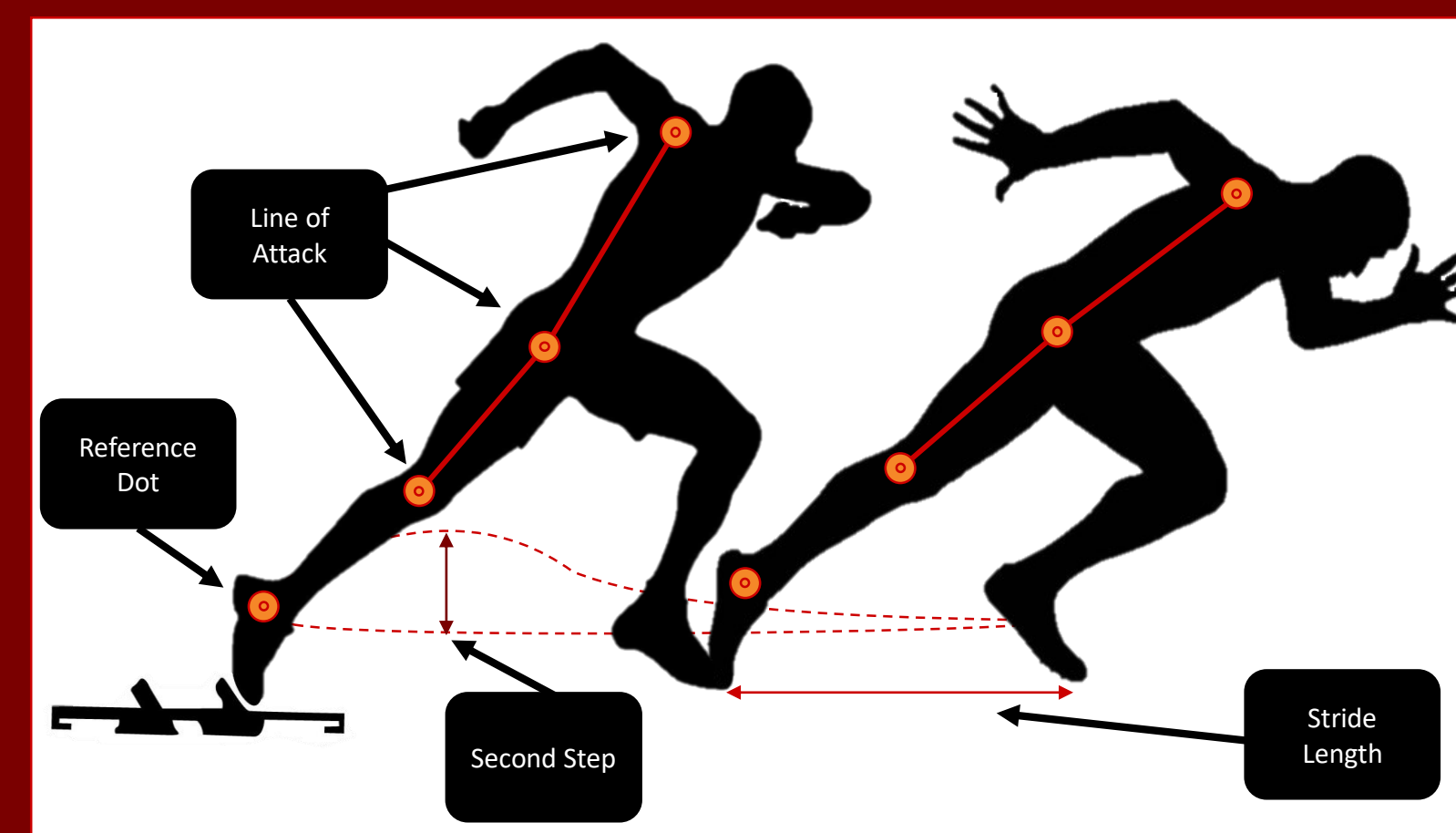
Base Station

- Housing was laser cut in Acrylic
- USB extender in the housing for laptop connection
- Battery inside the housing to supply power to the technology
- Raspberry Pi 4b within the housing for sensor analysis

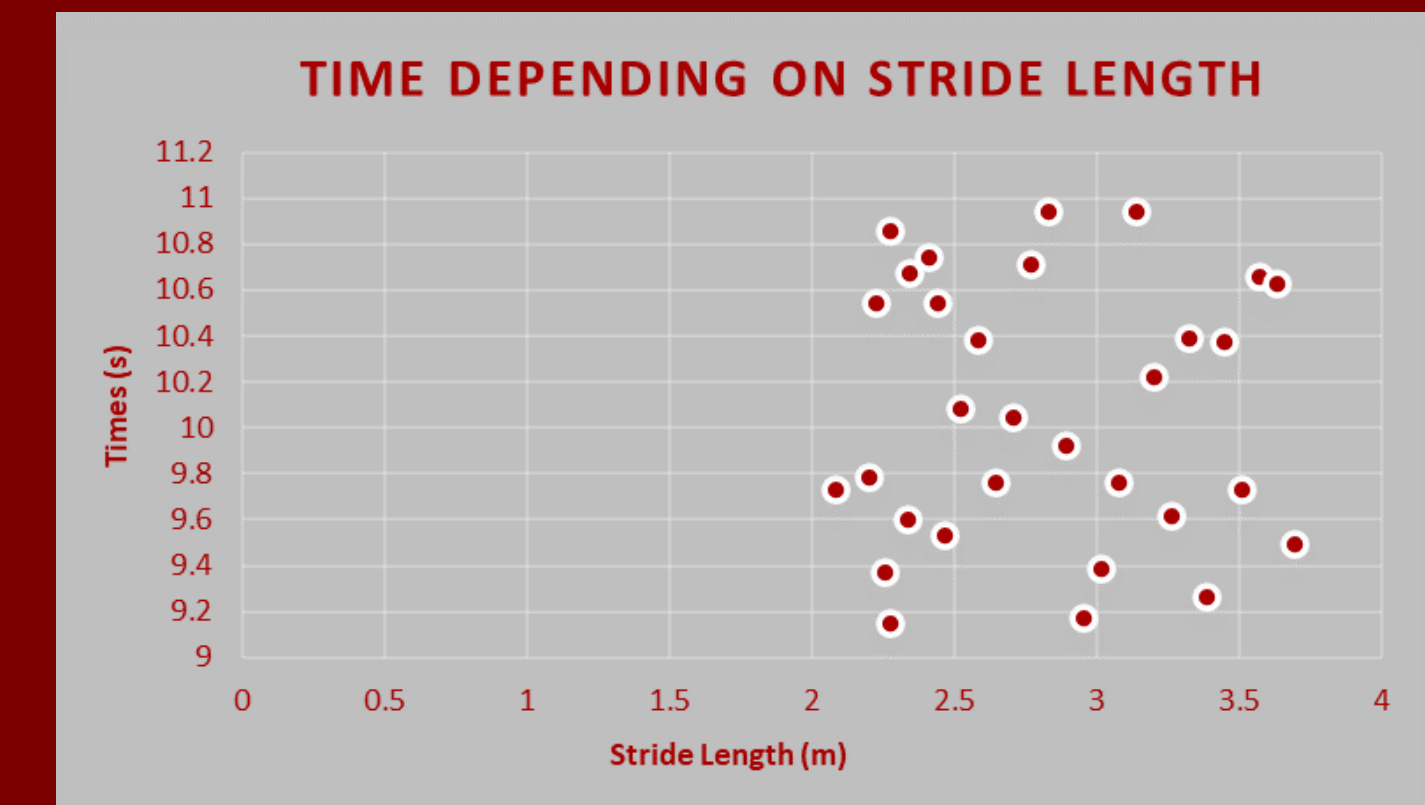


Start Measurements

- Utilize dots on the sprinter to gauge the line of attack
- Observe the second step & associated stride length with the high-speed camera and reference dot
- Calculate the impulse out of the block using force sensors on the block
- Record the starter gun reaction time using an audio recorder



Prediction Model



- Using ANOVA, find correlations between measurements and time
- Capture trends through 36 trials
- Use data and trends to create a prediction model for performance improvement

Average Velocity

- Use infrared sensors to measure average velocity
- One sensor every 10m

