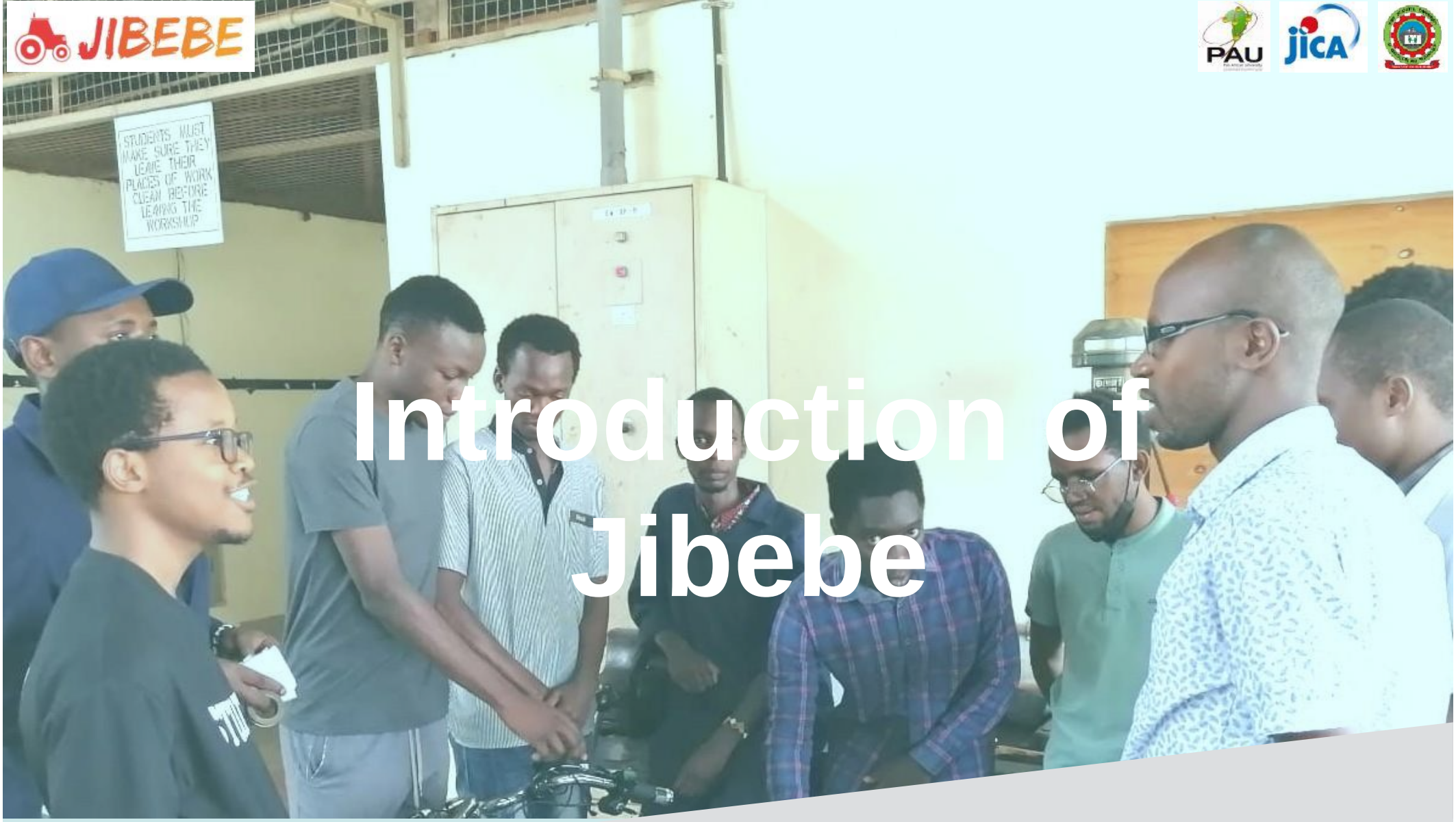

Introduction of Jibebe

Paul Moses

Jomo Kenyatta University of Agriculture and Technology (JKUAT)

Jibebe

Electric Vehicle Project in JKUAT

1. Electrification of tricycle

2. Electrification of tractor

Tricycle

The tricycle was worked on by 2 subsystems. The electrical and Mechanical subsystems.

The electric tricycle project was developed with some constraints in mind.

It had to be a cheap alternative solution thus had a budget cap of Ksh 120,000. It should have an operating time of 3 hours. (This was surpassed by the team to a maximum of 6 hours).

It had to be easy and fast to charge and thus a charging system had to be designed having a charging time of 8 hours.

The tricycle has a top speed of 16 Km/h.

It was also designed with a carrying capacity of 150 KG.

Tractor

The tractor was worked on by 3 subsystems. The electrical , Mechanical and Automation subsystems.

It was an improved electric version of the existing Shujaa Tractor

The tractor had to perform autonomously and also have self tilling capabilities. To be able to be fully autonomously, it had to incorporate Machine Learning and Computer Vision for object avoidance and allow for GPS guided route generation.

A robot was first designed to serve as a proof of concept of the system.

The mechanical and electrical worked on converting the existing drive system to its electric version.

The electric system would also serve as the executor of automated commands.