



FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MINING ENGINEERING

FINAL YEAR REPORT

**DESIGN AND FABRICATION OF A MANUALLY OPERATED SAMPLE
SPLITTER**

**FOR IMPROVED PORTABILITY AND COST-EFFECTIVENESS TO THE
LOCAL MINERS IN TIIRA**

BY;

OKITE CHRISTOPHER

SUPERVISORS

MR KWIKIRIZA MATHIAS

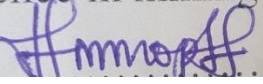
MR. SEBAGALA IVAN

*A final year project report submitted to the Department of Mining Engineering
in partial fulfilment of the requirement for the award of a bachelor of science in
mining engineering of Busitema University.*

MAY, 2025

DECLARATION

I **OKITE CHRISTOPHER, BU/UP/2021/3579**, declare to the best of my knowledge that the work presented in this project report is out of my effort and has not been published or submitted before to any university or higher institution of learning for the award of a bachelor of science in mining engineering.

Sign... 

Date...14th/05/2025

APPROVAL

I, **OKITE CHRISTOPHER**, submit this report of my final year project to the faculty of engineering in the Department of Mining Engineering for examination with the approval of my supervisors.

MR. KWIKIRIZA MATHIAS

Signature: 

Date: 14th/05/2025

MR. SEBAGALA IVAN

Signature: 

Date: 14th/05/2025

DEDICATION

This research is dedicated to my lovely parents and family for the efforts they have made towards my academics who have stood by me and always believed in me. May the almighty God bless you.

ACKNOWLEDEMENT.

First of all, I thank the almighty God for the protection and wisdom he has granted me throughout my education.

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Component	Volume/Size	Material Used
Hopper	0.0104 m ³ , Ø21 cm x H30 cm	Stainless Steel
Chute Chamber	27 cm long	Mild Steel
Receivers	0.00152 m ³ each	Stainless Steel
Shaft & Blades	Ø2 cm shaft, 50 blades	Mild Steel

4. Challenges and Recommendations

4.1 Challenges

- High material costs
- Unavailability of specific components (e.g., bevel gears)
- Inadequate project funding
- Time limitations
- User inconsistency in manual mixing

4.2 Recommendations

- Use stainless steel for parts exposed to moisture
- Develop versions for various sample sizes
- Refine chute and deflector geometry
- Train users for consistency
- Utilize locally available materials when possible

5. Conclusion

This manually operated sample splitter improves upon traditional sampling methods by offering enhanced accuracy, affordability, and usability in artisanal mining contexts. Despite material and logistical challenges, the device proved effective and economically viable. Its adoption could significantly impact mineral evaluation quality and financial returns for small-scale miners.

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