1 **In**dustry **4.**0, **al**so **kn**own **as the** fourth **in**dustrial **re**volution, **re**fers **to in**tegrating **di**gital **te**chnologies **in**to **ma**nufacturing **pr**ocesses. **Th**is **es**sentially **pa**ves **the way for the In**telligent **In**dustry-of-the-Future **c**oncept. **It in**cludes **the us**e **of au**tomation, **da**ta **ex**change, **an**d **o**ther **ad**vanced **te**chnologies **to cr**eate **a mo**re **c**onnected **an**d **ef**ficient **pr**oduction **en**vironment. **PLC, or Pr**ogrammable **Lo**gic **Controller , is a ty**pe **of in**dustrial **c**omputer **th**at **is c**ommonly **us**ed **in ma**nufacturing **an**d **pr**oduction **pr**ocesses. **PLC**s **ar**e **de**signed **to c**ontrol **an**d **au**tomate **ma**chinery **an**d **eq**uipment, **al**lowing **for mo**re **pr**ecise **an**d **ef**ficient **op**erations. **In th**e **c**ontext **of In**dustry **4.**0, **PLC**s **pl**ay **a cr**itical **r**o**l**e **in en**abling **au**tomation **an**d **da**ta **ex**change **b**etween **di**fferent **ma**chines **an**d **s**ystems. **Th**ey **c**an **b**e **us**ed **to mo**nitor **an**d **c**ontrol **pr**oduction **pr**ocesses **in re**al-time, **al**lowing **for gr**eater **ef**ficiency **, ac**curacy **, an**d **fl**exibility **. PLC**s **c**an **al**so **b**e **in**tegrated **wi**th **o**ther **In**dustry **4.**0 **te**chnologies, **su**ch **as s**ensors, **ma**chine **le**arning **al**gorithms, **an**d **cl**oud **c**omputing **pl**atforms, **to en**able **mo**re **ad**vanced **au**tomation **an**d **da**ta **an**alytics **ca**pabilities. **Th**is **c**an **he**lp **ma**nufacturers **op**timize **pr**oduction **pr**ocesses, **re**duce **c**osts, **an**d **im**prove **pr**oduct **qu**ality **. 2. Th**e **pr**oposed **re**search **aim**s **to st**udy **ho**w **PLC**s **c**an **ac**t **as th**e **c**entral **pi**llar **of In**dustry **4.**0, **th**ereby **ch**anging **th**e **ou**tlook **of th**e **c**ontemporary **in**dustrial **en**vironment. **Th**e **st**udy **wi**ll **in**vestigate **ho**w **PLC**s **wi**ll **b**e **us**ed **as a c**ontrol **sy**stem **to le**ad **e**verything **th**at **ha**ppens **in**side **a sm**art **fa**ctory **by in**tegrating **te**chnologies **su**ch **as th**e **In**ternet **of Th**ings (**I**oT), **cl**oud **c**omputing **as we**ll **as bi**g **da**ta **an**alytics, **an**d **al**so **el**ements **of AI an**d **ma**chine **le**arning. **Th**e **su**bjective **en**vironment **wi**ll **b**e **eq**uipped **wi**th **ad**vanced **s**ensors, **em**bedded **so**ftware, **an**d **ro**botics **for da**ta **st**orage **an**d **an**alysis, **wh**ich **wi**ll **fa**cilitate **b**etter **de**cision-making **in re**al-time. **Th**e **ou**tcomes **of th**is **st**udy **is ex**pected **to su**pport **th**e **on**going **ef**forts **of In**telligent **In**dustry-of-the-Future **to re**volutionize **ma**nufacturing **an**d **di**stribution **op**erations **fu**rnished **wi**th **hi**gh-functioning **di**gital **te**chnologies, **in**cluding **el**evated **ro**botization, **pr**edictive **ma**intenance, **s**e**l**f-optimization **th**rough **fe**edback, **an**d **ma**ximized **ef**ficiencies.